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DECEMBER 1984 / $2.00

WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962

A Bluegrass for Cool, Shady Sites and Winterseeding

Colleges and High Schools Start Raising Field Standards

Pennant-Winning Turf: Tiger Stadium and Wrigley Field

ATHLETIC FIELD ISSUE

Thoroughbreds gallop over Falcon tall fescue at Santa Anita Race Track.

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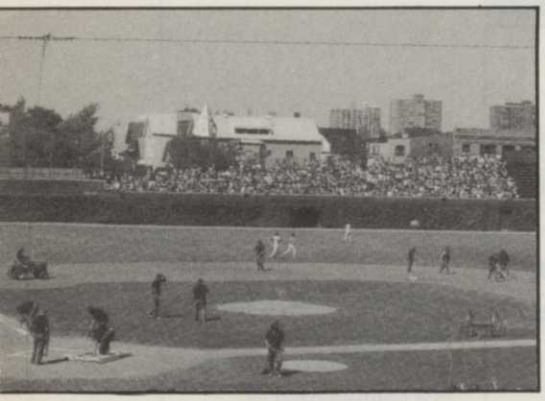
DECEMBER, 1984 VOLUME 23, NUMBER 12

WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962

18 A Breed Apart

There's no such person as a "typical" athletic field manager. That is one finding of WT&T's survey of athletic field managers across the country. There's a lot more to athletic field maintenance than keeping the grass green.



34 Proud of Their Roots

Notre Dame and Penn State athletic field managers know what it takes to keep two of the premier college fields in top condition. They also know what it takes to keep traditions alive.

46 Poa Trivialis—A Specialty Use Grass

Dr. Richard Hurley of Lofts Seed discusses the characteristics and uses of this versatile turfgrass.

22 Good Luck Charm for the Pros

Tiger Stadium and Wrigley Field have had their share of pennant-winning teams. Meet the men responsible for the turf at two of the country's baseball shrines.

42 Only the Best Will Do

Most prep field managers agree natural turf is best—for both safety and playability.

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WT&T's annual guide to the articles that filled our pages this past year and the authors who wrote them. A useful year-round reference.

COVER PHOTO by Jerry Hogevell, Art Department, Salem, Oregon.

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The result is a complete line of Medalist® turfgrass formulas that meet the demands of the professional turf manager.

If you've been staring down at a turf problem, look up your solution here. And if you think it's a turf problem we haven't seen, just let us know.

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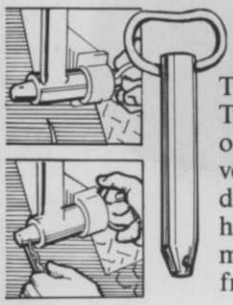
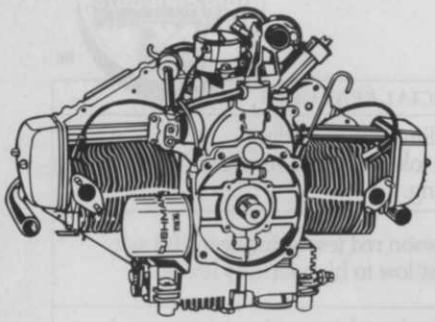


The Cushman Turf-Care System offers you a single vehicle that can do the work of a half dozen machines—at a fraction of the cost.

The exclusive Cushman pin disconnect system lets you attach and remove accessories in minutes.

A NEW 22-HP ENGINE.



The Cushman Turf-Truckster™ is now equipped with a new 22-hp gas engine.

It gives you the power to haul a full load uphill, without straining. It maintains a sure, steady speed while you're spraying or spreading.

And it's built tough. The crankshaft is forged alloy steel. The cylinder heads are reinforced for extra strength under stress. And the hydraulic pump is mounted to the engine for better service life and smooth operation.

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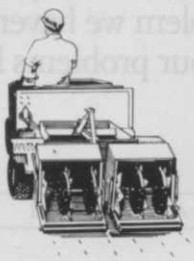
Because you have two types of turf to aerate, Cushman makes two aerator attachments for your Turf-Truckster.

The Greensaver® is ideal for greens and other delicate areas . . . while the Quick Aerator makes short work of big jobs (it covers a 46″ swath).

Both can be equipped with interchangeable coring or deep-slicing tines.



THE DUMP BOXES.

Again, you have a choice! Our Short Box is a high quality dump box . . . and our Flatbed/Box converts from flatbed carrier to dump box just by adding the bolt-on sides and tailgate. Both can be hydraulically dumped right from the driver's seat.

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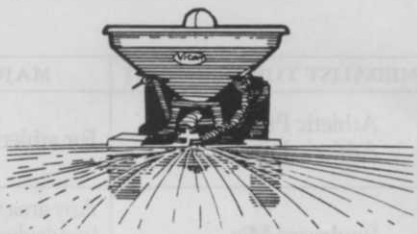

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by **Bruce F. Shank**, executive editor

Trimec becomes a commodity

Broadleaf weed control in turf may never be quite the same now that Trimec's patent has expired. What was a leading proprietary postemergence turf herbicide is now a commodity.

This will tend to push the price of 'Trimec-type' compounds down as new formulators jump into the market. It will also narrow the price difference between 2,4-D and more effective 'Trimec-type' compounds. Those sacrificing quality for price in the past may now start using the 'new Trimecs'.

Trimec is really a loose term referring to a premixed formulation of 2,4-D, propionic acid, and dicamba (Banvel). PBI Gordon, Mallinckrodt, and others with formerly patented 'Trimec-type' compounds, stressed better compatibility due to their formulating processes.

Lesco, United Agri Products, and others already have new three- and four-way products on the market for the coming weed season.

Turf growth regulators resurface

For years we've heard speeches at turf conferences on growth regulators for turf, but nothing developed. That could change in the near future.

Growth regulators for fine turf basically bombed for various reasons until recent studies showed the extra benefit of *Poa annua* seedhead suppression with 3M's Embark and Elanco's Cutless and Rubigan (a fungicide).

This newfound acceptance for fine turf has refueled the demand for utility turf growth regulators. Highway and parks department bean counters have pegged equipment mowing costs as three times greater than chemical mowing. What is more, highway people are sharing their experience now since the creation of the National Roadside Vegetation Management Association(NRVMA). Information that once spread slowly is now spreading like a brush fire.

Monsanto has announced it should have a label for its new Limit by next spring. ICI has a growth regulator in its bag of potential tricks. And 3M and Elanco products are already on the market. This time we are likely to see growth regulators stick and be accepted as a daily tool for both turf and ornamental care.

Sports turf volcano rumbles

The success of regional sports turf conferences has put a head of steam behind a national sports field movement. College and major high school athletic directors are starting to copy professional fields. They are asking a lot of questions about athletic turf management. Fortunately, years of hocus-pocus and secrecy are fading away under the pressure of intense stadium use. Expect BIG changes in the next two years.

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One of the first domestic varieties granted a Plant Variety Protection Act Certificate, Sabre is a dark green, fine-bladed turf grass that creates an absolutely superb green when overseeded on dormant turf such as Bermuda.

A rapid germinating variety, Sabre is a perfect overseeding companion for the turf-type ryegrasses and fine fescues. In an overseeding mixture Sabre has the additional advantage of reducing the seeding rate by as much as 50%.

Normal overseeding rate for either the turf-type ryegrasses or fine fescues is 35-40 lbs. per 1,000 square feet.

However, the seeding rate of either a ryegrass or fine fescue overseeding mixture which includes 20% Sabre (by weight) can be *reduced to 18 lbs. per 1,000 square feet.*

An extremely shade tolerant grass, Sabre is an ideal component in an overseeding mixture because it will disappear very rapidly when the hot weather arrives, thus clearing the way for the emerging Bermuda grass to come on.

You can also count on Sabre to be free of *Poa annua.*

SABRE—add it to your overseeding mixture and you'll be amazed at the beauty you have created. *(Sabre · P.V.P. No. 7700104)*

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ASSOCIATION

GCSAA to honor Ford at 56th annual show

Former President of the United States Gerald R. Ford is to receive one of golf's most prestigious awards at a dinner February 12 in Washington D.C.

The Golf Course Superintendents Association of America (GCSAA) is to present President Ford with the Old Tom Morris Award during the International Golf Course Conference and Show slated for February 5-13 at the Sheraton Washington Hotel.

"The award is presented to an individual who has helped to further the welfare of the game with the same dedication and zeal demonstrated by Old Tom Morris," James W. Timmerman, president of GCSAA, says.

Golfing great Arnold Palmer and entertainer Bob Hope are previous recipients of the award, named in memory of Old Tom Morris, a four-time winner of the British Open Championships between 1861 and 1867, and generally credited with boosting the popularity of the game worldwide as player, greenkeeper, club and ball maker, and golf course architect.

President Ford brought international attention to golf while serving as President. Since leaving office he has been a frequent participant in charitable golfing events, as well as sponsoring his own charitable golf tournament, the Jerry Ford Invitational Golf Tournament.

The 56th annual conference will feature more than 20 seminar courses and over 100 professional presentations by researchers, businessmen and golf course superintendents from all over the world. The number of companies expected to feature their products and services at the equipment and trade show should exceed 250.

The name of the conference was changed from International Turfgrass Conference and Show to "better explain the focus" of the annual event, GCSAA Executive Director John M. Schilling notes.

Monsanto makes commitment to future

Nicholas Reding, executive V.P., Richard Mahoney, President, and CEO, Dr. Howard Schneiderman, Sr. V.P. of Research and Development.

Monsanto made a major statement about the future of the chemical industry in October when it dedicated a $150 million research and development center in St. Louis County, MO.

Monsanto President Richard Mahoney told a collection of distinguished guests at the ribbon-cutting ceremony more than 1,200 scientists will use this research center to focus on the future needs of agriculture, human and animal health and electronic controls.

Central to the research are advances in biotechnology and total control plant growth chambers which can simulate conditions of any geographic location. The company's sleuths have already found dramatic keys to nitrogen-fixing bacteria for plant roots and hormones produced by the human heart.

What took 15 years to figure out in the field can be done in months in the special growth chambers and laboratories.

Mahoney said the company will have its new growth regulator on the market within the coming year.

INDUSTRY

Fertilizer market strong through summer

U.S. fertilizer markets, both domestic and export, remained strong this summer, the Fertilizer Institute reports.

Domestic disappearance (sales plus conversions to other products) increased by 19 percent over the same period of 1983 while exports of finished products jumped by 62 percent, with major increases in each of the nitrogen, phosphate, and potash product groups.

The Institute says production for finished products increased 36 percent this summer with U.S. potash production more than twice last year's level.

"We've certainly had one of the better earlier fall seasons than we've had in several years," William C. White of the Institute told *WT&T*.

Imports increased 27 percent over 1983. Muriate of potash constituted 60 percent of the total, and anhydrous ammonia 22 percent, the report, reflecting information provided by producers, notes.

ATHLETIC FIELDS

Royals favor grass but won't get it

Members of the Kansas City Royals professional baseball team prefer natural turf, but they're not going to get it.

A poll late in the 1984 season by

8.5%

Annual Percentage Rate

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Now you can get down to work with financing that's down-to-earth.

Kubota Credit Corporation is offering 8.5% APR financing on all Kubota tractors and implements, for a limited time only. And it's now available in all 50 states.

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Kansas City Times writer Tracey Ringolsby, revealed 23 Royals favor grass, two prefer the artificial surface, and one player doesn't care. Royals Stadium has had an artificial playing surface since its opening in 1973.

Despite the survey results, the Royals management is planning to install a new artificial surface in Royals Stadium prior to next baseball season. The proposed surface, with a four-year guarantee to be softer than grass, will feature slits for better drainage.

Natural turf is somewhat of a luxury for members of the Royals who jogged on a strip of carefully maintained grass behind the centerfield fence for their pre-game warm-ups rather than run on the harder artificial surface this past season.

INDUSTRY

Toro earnings rise to five year high

The Minneapolis-based Toro Company reports its strongest year-end earnings in five years.

Net earnings for the year ended July 27, increased from $572,000 the year before to $8.3 million, while per share earnings improved from a negative 19 cents to 98 cents.

"We experienced solid growth in most of our major product lines," Kendrick B. Melrose, president and chief executive officer, says. Demand for Toro's irrigation products led the advance, while professional turf equipment recorded "strong growth."

Melrose cites new product introductions, improved economic conditions, aggressive marketing actions, and favorable weather as reasons for the upturn. Other factors include better management of assets and strong expense controls which resulted in a significant reduction in the company's total debt.

The company's biggest challenges in 1985 will be in its walk power mower segment and in the strength of the U.S. dollar against foreign currencies.

Melrose says he expects 1985 sales and earnings to show improvements over the previous year.

RESEARCH

Ohio prof says trees heal better in spring

Trees damaged in the spring have a better chance of healing, Dr. Curt Leben says.

The reason? Dr. Leben theorizes high internal water content of trunks in the spring promotes healing and reduces the formation of discolored wood associated with wounds.

Dr. Leben, professor of plant pathology at the Ohio State University Agricultural Research and Development Center, purposely wounded 93 red maple trees with a chain saw. After two seasons he analyzed the wounds, discolored wood above and below the woods, and the amount of callus tissue the trees manufactured.

He discovered that fall wounds heal poorly and the discolored wood volume was greater than on trees wounded in the spring. The amount of discolored wood is important because it may eventually become decayed. Water content in the fall is lower, Dr. Leben reports, and this apparently results in poor healing.

ASSOCIATION

APPA buys building, moves to Alexandria

At last count 120 national associations were headquartered in Alexandria, VA. Add one more, the Association of Physical Plant Administrators of Universities and Colleges (APPA).

The APPA, with 1,200 members, recently purchased a new building at 1446 Duke Street and relocated its international headquarters there.

Knapp says his association made the move to lower operational costs, and because of access and quality of life. The new address for APPA is 1446 Duke St., Alexandria, VA, 22314, (703) 684-1446.

TURFGRASS

Cornell turfgrass research gets aid

Turfgrass research at Cornell University received a sizable chunk of cash from the New York State Turfgrass Association (NYSTA) this past year.

Contributions from 28 businesses and associations to NYSTA for research being conducted by A. Martin Petrovic, Richard Smiley, and Normal Hummel exceeded $28,000, 40 percent more than the previous year. The money is being used in a broad-range study of turfgrass including fine cultivar evaluations, compaction studies, effect of herbicides, nontarget effects of fungicides on the environment, and the funding of a graduate student who is helping in the research.

CHEMICALS

NY pro-pesticide council is formed

Leaders from industries concerned with the safe use of pesticides came together in a broad-based council in New York State recently.

The fledgling New York State Pesticide Users Council (NYSPUC) is fully operational, according to its president, Jeffrey T. Duflo, marketing manager of Duflo Spray-Chemical Inc., New Bremen, NY. The organization hopes to put a representative in the state capitol soon.

"We believe in regulations that make things better, safer and cleaner, but that are sane, rational and workable," Duflo notes. "We intend to fight for the rights of the professionals who daily use federal and state approved pesticides correctly and safely."

James Taylor, owner of Taylor Tree Surgery, Inc., Walden, NY, is vice president of the group, Robert J. Mungari of the state department of agriculture and markets its secretary-treasurer.

"We intend to promote a favorable climate between NYSPUC, its member organizations and appropriate governmental bodies, agencies and officials," Duflo says. "The intent is to provide input on the potential impact of legislation and regulations from the experience of the professionals in the business."

The membership of NYSPUC is to be made up of trade associations, formulators, distributors and jobbers, dealers, re-sellers, commercial and certified applicators.

NYSPUC hopes to represent associations with a combined membership approaching 40,000. "With this kind of a group we can accomplish more than all of the smaller, individual associations can separately," Duflo adds.

Officers and members *of the Board of Directors of the NYPSUC include left, front row, President Jeff Duflo, Vice President Jim Taylor and Secretary-Treasurer Bob Mungari.*

HOW ENKATURF CAN KEEP YOU FROM LOSING YOUR ROOTS.

A lot of people are interested in finding their roots these days. We're interested in keeping them. That's why we've developed the Enkaturf® System.

The Enkaturf System utilizes Enkamat® 3-dimensional nylon webbing to reinforce natural grass and reduce root zone compaction, making the turf more durable, more resilient and more beautiful.

The Enkaturf System gives turfgrass the protection it needs to grow and heal itself. The webbing is structured to keep turf anchored and resilient even in heavy traffic areas. Compaction, aeration, maintenance costs and players' injuries are reduced tremendously.

Soccer fields. Players who use their heads want to keep their feet on firm ground. That's why Enkaturf, created in Europe over 15 years ago, has been used there extensively to enhance the strength of natural playing fields. And now that Americans have discovered soccer, they've discovered the benefits of Enkaturf on the soccer field too.

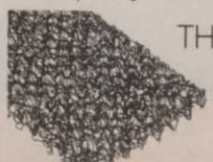
Football fields. The Enkaturf System is a natural grass system without the pitfalls of artificial turf. Enkaturf tackles the problems of torn-up grass and eliminates them, creating a firm, well-reinforced playing surface.

Airfields. The best kind of ground control. The Enkaturf System provides a shock-absorbing surface for landing strips and offers long-term reinforcement of the turf for these as well as adjacent areas.

Golf courses. A stroke of genius. The Enkaturf System is perfect for soil erosion problems, entrance ways to cart paths, tees, pond stabilization and for the construction of flood plains. In fact, eleven of the top forty golf courses are using Enkaturf... of course.

Zoos. Putting the animals out to pasture? It's no longer a problem, thanks to Enkaturf. The system gives sod a structural strength which stands up to pounding, pawing and prancing hooves. It is also effective for grass walkways, erodible slopes and other areas subject to erosion. No wonder so many architects and engineers are specifying the Enkaturf System. Because sometimes you have to let the grass grow under your feet if you don't want to get stuck in the mud.

Contact Enkamat Systems, American Enka Company, Enka, NC 28728. (704) 667-7668.



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BY **ENKA**
Helps keep grass
from losing its roots.

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GOVERNMENT UPDATE

Check hazardous waste quantities

If your business generates more than 200 pounds of "hazardous wastes" per month, you will soon have more rules to obey. The definition of "hazardous waste" will be set by the Environmental Protection Agency and is likely to include pesticides, many chemicals, their containers and anything contaminated by them.

The new rules are part of the Solid Waste Disposal Act, a new law designed to assist toxic waste control, a politically hot topic at the moment.

Businesses generating more than 200 pounds per month will face a whole set of rules involving leak prevention, underground storage, record-keeping and inspections by late 1985.

Environmental impact factor in biotech rules

EPA must be notified of all field-studies for genetically-altered or biotech pesticides under interim regulations announced in October. Some concern over use of these materials has already make them an issue in California where enviromentalists want to know what happens to genetically-altered products in the soil.

The environmentalists are attacking the pesticides in the same way they have in Oregon, asking for environment impact statements prior to use on government lands. For nearly all states EPA regulates pesticide testing through experimental use permits.

Up to now, all regulation of biotech products has been handled voluntarily by chemical companies based on guidelines set by the National Institute for Health. Both EPS and FDA are expected to get involved in regulation of biotech products in the near future.

Testing of biotech materials in laboratories is exempt from the interim EPA regulations.

Legislators go after pesticide residue tolerances

Bills involving additional regulation of pesticide residues have been introduced in both House and Senate. The bills are designed to force a closer look at currently allowable pesticide residues on food products.

Both bills establish a review and hearing process for questionable residues and are intended to "close loopholes" in existing legislation. Advanced technology now provides knowledge of extremely minute quantities of pesticide on food. Standards designed for previous technology are being reexamined.

PEOPLE

Names in the news

Richard Slivinski, the highly regarded golf superintendent for the Phoenix Parks, Recreation and Library Department, is resigning his position to start his own golf and turf management consultant service. He is credited with implimenting a successful water conservation system on the park courses, directing the construction of the new Cave Creek Golf Course, and making the city golf program self supporting during his eight years with the Phoenix department. He is a National Director of the Golf Course Superintendents Association of America and serves on state pest control and water management committees.

Also in the golf world, **Ted W. Zahn** is planning to re-establish the National Golf Foundation's education division in Scottsdale, AZ, after being named the NGF's director of education and golf promotion. Zahn joined NGF in 1979 as national education director after 15 years as a teacher, coach, athletic director, and school administrator in Oregon.

Zahn will also administer NGF's new Academy of Golf Instructors, an organization created to provide support, publications, films, and services to golf coaches across the nation.

Elanco Products Company, Indianapolis, IN, announces two promotions. **D. Michael Baker**, a native of Webb, MS, moves from his position of

D. Michael Baker

N. Wayne Rish

manager of national accounts for agrichemicals to director of sales, agrichemicals. **N. Wayne Rish** is the new executive director of agricultural chemicals marketing. Baker and Rish both began their careers with Elanco in 1969.

John Gutknecht begins his duties as president of the fertilizer division of Kaiser Aluminum & Chemical Corporation. The 51-year-old Gutknecht served as the division's vice president and general manager since 1983. He is a graduate of Tulane University with a degree in chemical engineering and holds an MBA from Louisiana State University.

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For single-application broadleaf weed control, the triple-action effectiveness of 2,4-D, MCPP and dicamba is tough to beat. Now you can get that reliable three-way control from LESCO — and at a lower price than you have been paying for the same herbicide combination. And LESCO Three-Way eliminates the inconvenience and inefficiency of tank mixing — you save time and money.

This newest quality herbicide from LESCO is available in five-gallon, 30-gallon and 55-gallon containers. In most areas, bulk shipment by tanker truck or tote tank can also be arranged.

LESCO just made broadleaf weed control more convenient and less expensive. To order or to find out more about LESCO Three-Way Selective Herbicide, call toll free.

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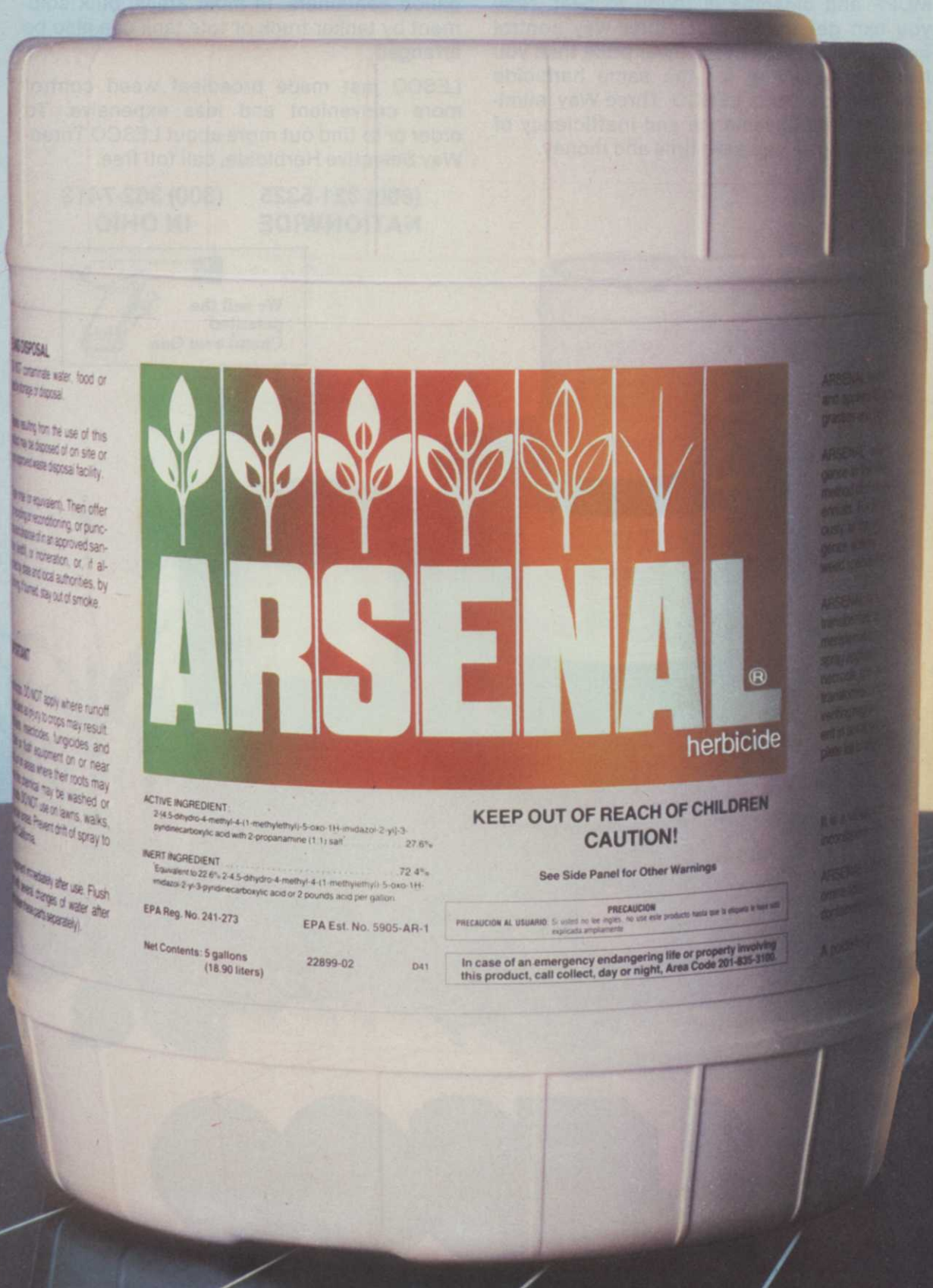
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INERT INGREDIENT 72.4%
Equivalent to 22.6% 2-4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl-3-pyridinecarboxylic acid or 2 pounds acid per gallon
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  ARSENAL works by both contact and residual action. It's absorbed by roots and foliage of target plants within 4 hours; and it's not then washed away by rain.
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  ARSENAL controls more undesirable plant species than any other vegetation control method. It even gets woody vines and perennial grasses such as trumpetcreeper and Johnsongrass.
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Read and follow label directions carefully.

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LANDSCAPE MANAGEMENT

Yearning for Recognition

Maintaining college fields is not well understood. Grounds managers are asked to do much more than just keeping the gridiron neat.

by Ron Hall, assistant editor

A major roadblock to serving the athletic field market has been that there is no such thing as a typical athletic field manager.

It's the least understood area of turf management," one grounds manager told WEEDS TREES & TURF, "with the least amount of information available."

An informal survey of college and university athletic field managers in September now provides some consistencies in the way athletic fields are managed.

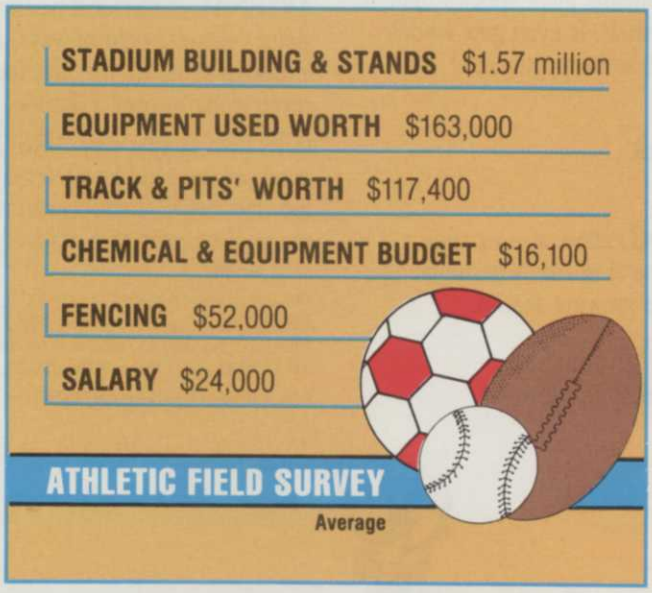
The individual in charge of athletic fields is also responsible for the entire campus in more than half the cases. He reports to the Physical Plant Director but must consult regularly with athletic directors and coaches. He puts together his own budget and field maintenance standards.

His biggest concerns are overuse of the fields, control of them, time available, and water (irrigation and drainage.)

For the most part, he operates without any particular set of recognized field maintenance standards, putting together his own based upon his experience and requests from the athletic department.

The average budget for chemicals and equipment for fields was $16,000, while the track surface and pits are worth $117,400, the fencing around fields is worth $52,000, the equipment used worth $163,000 and the stadium building and stands are valued at $1.57 million.

With sizeable investment for just the athletic portion of their responsiblity, colleges need more than a "maintenance man."



"Colleges don't want people in charge who go out and just work with their back all day," a chief groundskeeper at a college in the Southeast says. "They want people with some leadership, and people who can put together a budget, train other people, and supervise effectively."

College administrators can't expect a person who has little education and is unwilling to accept responsibility to manage buildings and landscapes worth millions of dollars. There is more than money at stake. The atmosphere of the campus to students and alumni and the safety of athletes are also at risk.

Management decisions for these can't be made by someone working out of a closet with a washtub in it or a cramped corner of the equipment room in the gym.

The athletic field manager of today has to work out complicated schedules, substantiate budget requests, deal with unions, and still know grass. He has to overcome bad weather, satisfy alumni, and even invent equipment and methods to get his job done.

Salary range

Salaries (and respondents were surprisingly frank) ranged from $12,000 to $40,000 annually, with 14 percent of those polled earning in the $12,000-$19,000 range, 48 percent in the $20,000-$25,000 category,and approximately 26 percent $25,000-$30,000.

Those indicating the highest salaries usually hold titles such as grounds and services manager, physical plant director, or director of facilities and grounds.

"I think you'll find the salaries to be about the same as what park directors make," one superintendent notes. "In the North they're probably a little higher than in the South."

Experience is a big word in the college groundskeeping fraternity with 11 years on the job being an average of all those responding, the low respondent having one year experience, the veteran 36 years.

These averages may not give the complete picture since some of those relatively new in their positions also indicate previous experience in grounds departments or related businesses.

Slightly more than half hold undergraduate degrees with hor-

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ticulture, just edging agronomy, the most prevalent educational background. Nine percent hold associate degrees, 15 percent graduate degrees.

While many of the college grounds superintendents who responded to our survey earned their positions by coming up through the ranks, they, like their more formally educated counterparts, are eager to broaden their understanding by attending conferences and seminars. Winter short courses in turf management by some larger universities provide an excellent opportunity to learn, several note.

Harry Gill, right, and assistant Gary Vanderberg *of County Stadium, Milwaukeee.*

Specialized training

The feeling among grounds superintendents is that the profession will require more specialized training in the future.

Differences caused by the size of colleges and universities and geographic location sometimes make direct comparisons tricky.

If the grounds superintendent isn't worrying about pushing the snow off a parking lot in the North, he's fretting about the seed he put down on the bermudagrass in the South, hoping for just a bit more green before the alumnae show up for their once-a-year homecoming bash. In fact, he often doesn't have the same responsibilities from campus to campus.

Few—a very few granted—fulfill responsibilities seemingly unrelated to athletic field maintenance, like one respondent who schedules events at the university ice arena also. Or another who serves as athletic director and baseball coach. More common are the grounds superintendents (a title used by 60 percent of those answering the survey) responsible for *all* the grounds at their particular universities or colleges, athletic fields being just part of the picture.

Almost 80 percent of those responding to the poll indicate they maintain more than ball fields, slightly more than 10 percent doubling as transportation supervisors also.

Although there's no such animal as the *typical* grounds superintendent, there are *typical* problems, our survey suggests, the most common being over use and control of the use of athletic fields.

Problems

"The biggest problem we have is keeping everything off the main football field. Now we've got soccer and rugby and that's one reason why I'm retiring," one veteran superintendent says. "You can't play on it everyday and expect it to stay good."

... the profession will require more specialized training in the future.

Band practices, ROTC drills, even parking ("if we don't play on it, we park on it," one manager moans) cause headaches for those charged with keeping the campus green.

"Coaches as well as other field users need to be more realistic and sensitive to field wear," a supervisor in the Northeast says.

Another superintendent complains, echoing the reponses of several others, he can't keep "conscientious" help because of lack of funds. "You kind of scrimp," he says. "You know what has to be done, but you just can't get it done."

Time. It's a major problem.

"I'm responsible for 119 acres of campus plus the athletic fields," a West Coast grounds supervisor explains. "It's hard to find time to do everything. This year we rebuilt our football field (900 yards of new soil, new grass). We only had six weeks to get ready before our first game."

80 percent of those responding say they maintain more than ball fields.

Other problems listed in order of their frequency on the survey include poor drainage, inadequate irrigation, lack of equipment or equipment failures, and weed control.

University field managers and grounds supervisors keep themselves informed in a variety of ways, and 65 percent of them specificially listed trade publications with 30 percent using suppliers for ideas on a regular basis.

Solutions

Grounds managers are not bashful in seeking solutions to specific problems and the sources they use include product manufacturers, local extension offices, and specialists in related areas. Most have developed a network of "experts" they contact on a periodic basis for assistance, our survey shows.

Most indicate a need for a better exchange of information, or as one harried answerer pleads, "I need all the help I can get." Just over 50 percent responding to our survey said they would join an association for field managers with another 18 percent answering "maybe" or "depending upon the benefits." Only 12 percent came back with a definite "no."

Many current athletic field managers made it to the top by hard work, on-the-spot problem solving, and by being good politicians. Replacing them, however, are former golf course superintendents and horticulture graduates.

These new managers are more receptive to new techniques, more willing to share their expertise, and more determined to make natural turf withstand the wear of athletics. They will take the athletic field manager out of the days of secrecy and into the days of rapid progress. **WT&T**

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LANDSCAPE MANAGEMENT

Pennant Winning Turf

Historical Detroit and Chicago fields prove inspirational to pennant winners.

by Ron Hall, assistant editor and **Kent Kurtz**, professor of Horticulture, California Polytechnic Institute, Pomona, CA

Wrigley Field —*one of the oldest and most respected baseball fields in the country.*

Tiger Stadium

Millions watched the virtuoso performance of the Detroit Tigers in the World Series, but the name Frank Feneck, assistant director of stadium operations at Tiger Stadium, is hardly a household word.

"We're here for the Tigers. We're not here for the people to say, 'Oh, what a beautiful turf you have'," the pragmatic Feneck, chief of the stadium's groundskeeping force, says.

Feneck is uncomfortable with the publicity his profession sometimes generates.

"When I don't hear from the ballplayers I know I'm doing a fine job," he says.

The criticism of San Diego's Jack Murphy Stadium during the Series elicits a sympathetic response from Feneck. "I hate to hear complaining about their field," he says. "No matter what they do, they're going to lose because they share the field with a football team. We only have to worry about the Tigers. That's why I sometimes hate to hear compliments about our field."

Maintaining Tiger Stadium is a snap compared to what it was before the NFL Lions moved to the Pontiac Silverdome in 1974, Feneck, a native Detroiter claims.

"We used to carry about 18,000 yards of sod," he says. "Now it's like handling a loaf of bread compared to what we used to do. When you don't have football and baseball combined, you're not in bad shape."

Feneck feels adequate irrigation is the key to maintaining good athletic turf. "If you've got the team home for two or three weeks, you just try to make the grass survive until the team goes on the road and then you flood it," Feneck explains. "I'd say most of keeping good grass is water. I like to water twice a day in July and August."

A five-year-old, underground Rainbird sprinkler system takes most of the work out of Tiger Stadium irrigation.

Feneck insists groundskeepers should have an excellent understanding of the sport they're dealing with ("I played baseball and I know what I liked") but the groundskeeper still won't please everyone.

"If you can get grass to grow in a minute," he sighs, "then you've got something."

Wrigley Field

A chill runs down any baseball fan's spine when he steps onto Chicago's Wrigley Field. The soil is the same trod by the immortal and legendary heroes of the past, Babe Ruth, Lou Gehrig, Honus Wagner, Mel Ott, Joe Dimaggio, Jimmy Foxx, and others.

The field has not changed much since the Cubs played their first National League game there on April 20, 1916. Only three other stadiums are older than Wrigley Field, Comiskey Park (Chicago, opened in 1910), Tiger Stadium (Detroit, 1912), and Fenway Park (Boston, 1912).

Wrigley history

The first baseball game was played at Wrigley Field on April 23, 1914. The field was named Weeghman Park in those days and was the home of the Chicago Whales, a Federal League team which went out of business two years later.

Weeghman Park was built for $250,000 and accommodated 14,000 fans. Building the stadium required 490 men, 140 were employed by the George Wittbold Florist Company to haul in 4,000 cubic yards of soil and

continued on page 26

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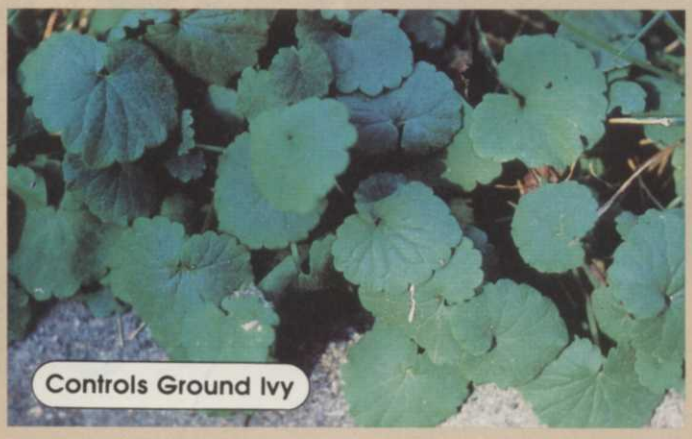

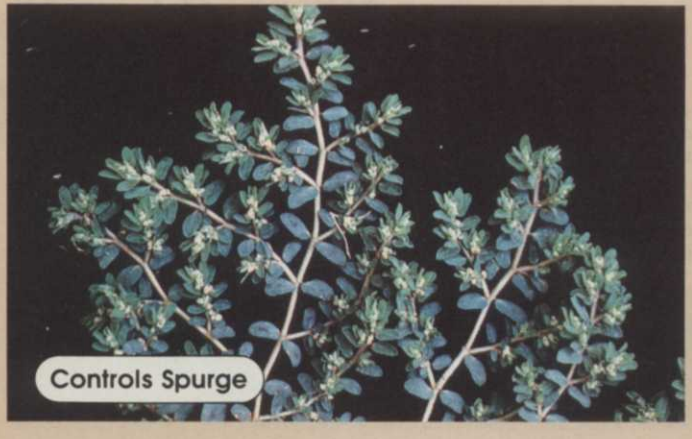

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(3.785 liters)

- Controls Spurge, Oxalis, Ground Ivy and other hard-to-control weeds.
- Rapid visible effect in early-season or late-season cool weather.
- Minimum hazard to nearby flowers and ornamentals.

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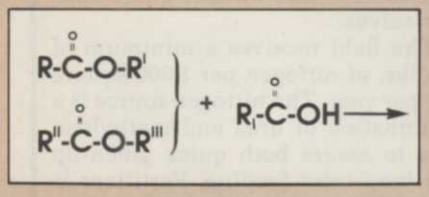
We are continually testing ways to improve Trimec. In the beginning was our U.S. patent number 3,284,186, which gave us the sole right to combine 2,4-D, MCPP and dicamba.

It was certainly a giant step forward in turf herbicide because it was synergistic, but there are often problems with just tank mixing chemicals . . . problems caused by inconsistencies from batch to batch. And thus it was that our first major progress came from our experiments that led to our ability to react the three acids, in a unique way, to form a new compound.

The next big improvement came in our discovery of the eutectic principle, which causes the unique complex to resist crystallization and penetrate into the circulatory system of a weed much more rapidly.



And then came the little jewel you see above. It is a unique means of combining different esters with dicamba to form a new and unusual Trimec Complex.

How we do this is, of course, a trade secret, but the activity of the complex is nothing short of amazing! It controls tough weeds like Ground Ivy, Oxalis and Spurge as easily as shooting fish in a barrel . . . It delivers fast, visible response in early-season or late-season cool weather . . . and yet it poses a minimum hazard to flowers and ornamentals.

Turf Professionals Named it Super Trimec

We decided to call it Trimec Turf Ester, and in our advertising we offered a free sample. To our amazement and sheer delight, some 9,000 turf professionals took us up on the offer . . . and soon the bouquets started flooding in to our headquarters in Kansas City.

If there was one word that stood out in the comments from users, it was *Super* . . .
"The control of Spurge was super."
"The low volatility is really super."
"The quick response was really super."
"The efficiency was super."

Well, if our friends in the turf community insist that it is Super, who are we to argue? Super it is! So the name has been changed from Trimec Turf Ester to Super Trimec.

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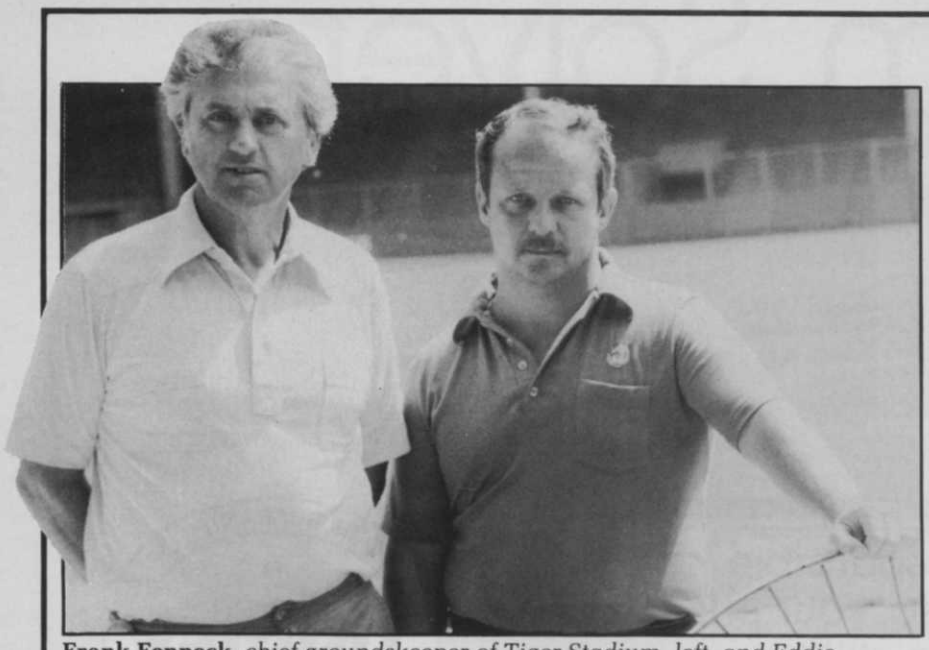

Frank Fenneck, *chief groundskeeper of Tiger Stadium, left, and Eddie Goward.*

plant four acres with Kentucky bluegrass seed, hand-collected from midwestern pastures.

The name of the field was changed to Cubs Park in 1918 and then to Wrigley Field in 1926. A second deck was added in 1928 allowing a capacity crowd of 46,000 fans to jam into the stadium. More than 10,000 spectators watched some games standing along the edge of the field.

The large centerfield scoreboard was constructed in 1937 and continues today to be the only scoreboard in the major leagues to be operated by hand.

Today, Wrigley Field seats 37,275 spectators, and only during the day since it is the only major league park without lights.

Lights were almost installed in 1941 when the Wrigleys purchased bulbs, wiring, fixtures, and steel light standards. But, when Pearl Harbor was attacked and the country went to war, all the lighting equipment was donated to the war effort.

Another tradition of Wrigley field is the Ivy Covered Walls. In 1938, a young Bill Veeck (later owner of the Chicago White Sox) purchased ivy and bittersweet from "Clavey's Corners" and with the aid of Bob Dorr (park superintendent) and Cotton Bogren (clubhouse boy) ran copper wire up and down the brick facade and strung the vines. Each spring the ivy comes out of winter dormancy just in time to begin a new and invigorating baseball season.

The new tradition

In 1980, the Cubs were purchased from the Wrigley family by the Chicago Tribune and the entire baseball program was restructured.

Building a "new tradition" is an understatement, for they not only put together a winning ball club (the 1984 National League East Champions), but also changed the stadium and field management team, now headed by Lubie Veal, assistant director of stadium operations/facilities.

Veal brought to Chicago a positive attitude and broad experience from the previous National League baseball clubs. Lubie spent four years in Montreal, nine years with the Cincinnati Reds, and has just completed his third year with the Chicago Cubs. Everything he has learned about the management of sportsturf has been acquired through working long hours, trial and error, and a lot of hard work and energy.

Veal is the new breed of sports-turf manager; one who is willing to learn new ideas, attempt new techniques and try new products. He will listen to advice and seek suggestions to make his job easier and to enhance the playing surface.

When Dallas Green, executive vice president and general manager, came to Chicago from Philadelphia after the 1981 baseball season, he lured Veal away from the Cincinnati Reds to take over field maintenance. Upon his arrival in Chicago, Veal found most of the turf maintenance equipment in very poor condition. He convinced management that to perform his job correctly he needed to purchase $70,000 worth of equipment. His request was granted and he is now able to perform his maintenance responsibilities with an adequate arsenal of equipment.

All large equipment, such as a skid-steer loader, mowers, utility vehicle, tractor, sod cutter, roller, large drags, batting cages, and wheel barrows are stored under the left and center field bleachers. Adjacent to the Cub's third base dugout is a tool room where small hand tools, equipment and supplies are stored. Also located in this room is an adequate supply of moist clay used to repair the pitching mound and the home plate area, several sets of bases, small drags, hoses, shovels and rakes.

The stadium crew

Except on rainy days the stadium crew is rarely seen by spectators. It consists of 22 individuals, only five directly responsible for the playing field on a full-time basis.

Frank Capparelli is responsible for the crew who give the field the finishing touches prior to each game. Many of the crew have long service records, like Lenny Wheeler who began work in 1957. Cotton Bogren retired in 1982 after 47 years of service.

Einar Bogren, assistant supervisor of the field crew has worked at Wrigley Field for 24 years. Einar is responsible for the condition and upkeep of the field and the ivy.

Maintenance program

The soil in Wrigley Field consists of sandy loam which is well-drained and rich in organic matter. When the field was originally constructed, surface drainage was taken into consideration. To the novice the field looks flat; however, the infield slopes four inches from the base of the pitching mound to the infield grass and outfield slopes ten inches from centerfield to each foul line.

The irrigation system was installed 40 years ago and utilizes quick coupler valves.

The field receives a minimum of five lbs. of nitrogen per 1,000 square feet per year. The nitrogen source is a combination of urea and methylene urea to assure both quick green-up and long term feeding. Fertilizer is applied in March, May, June, September, and October. An application of 2,4-D and MCPP is applied in May for broadleaf weeds and Dursban is applied in June to control grubs and sod webworms.

The field is not aerified, vertical

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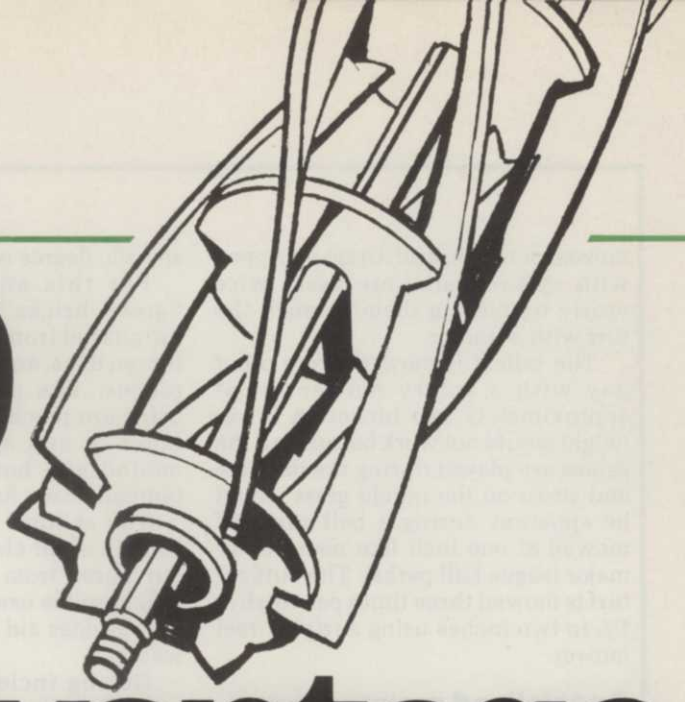

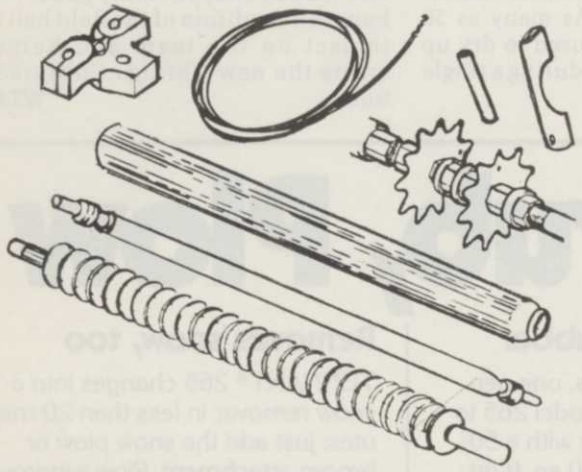

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mowed or topdressed. Drags equipped with spikes (nails) are used twice yearly by pulling them through the turf with a tractor.

The infield is mowed every other day with a rotary mower set at approximately two inches. A lower height would not work because all the games are played during the daytime and stress on the infield grass would be apparent during a ball game (if mowed at one inch like many other major league ball parks). The outfield turf is mowed three times per week at 1½ to two inches using a triplex reel mower.

Specialized maintenance

Many of the jobs performed by the grounds crew may seem routine to the casual observer, but are really quite specialized.

Building the pitching mound is a slow, exacting process which requires six to eight hours according to Veal. The mound is built of clay layered in two-inch increments and tamped by hand until the mound is ten inches high and the sides and back taper to a specific degree of slope.

For this and other purposes "green bricks" (not Kiln dry) are purchased from a brick yard, soaked for ten days, and then broken up into pieces. The pieces of moistened brick are placed in depressions and holes in and around the pitching mound and home plate areas and tamped down firmly.

The skinned areas in the infield contain a red clay and sand material purchased from the East Coast. The infield soil is used mostly for aesthetics but does aid drainage during wet weather.

During inclement weather and every evening when the Cubs are home, the infield is covered with a nylon laminated field tarp. Placing and removing the nylon field cover requires the help of the entire stadium crew. Whenever standing water accumulates on the skinned infield an aggregate known as Turface is used to absorb the moisture. As many as 50 50-lb. bags have been used to dry up wet spots on the infield during a single ballgame.

The foul lines in left and right fields are marked prior to each home game. A carbon dioxide (CO_2) charged sprayer containing a white latex field paint is used to apply the foul lines. To mark the batter's box at home plate a white, non-caustic chalk material is used.

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The summer of 1983 was extremely hot and dry and the old common Kentucky bluegrass turf was heavily infested with Fusarium blight. Immediately following the 1983 baseball season (October), the old Kentucky bluegrass turf was and removed. After soil preparation, 108,000 square feet of an improved blend of Kentucky bluegrass was sodded in Wrigley Field. The new blend of Kentucky bluegrass included Adelphi, Touchdown, Majestic, Glade, and Ram I.

During the 1984 season the field turf looked exceptionally good. Perhaps the condition of the field had an impact on the team and helped create the new Chicago Cubs tradition. **WT&T**

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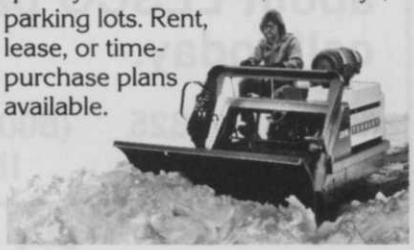

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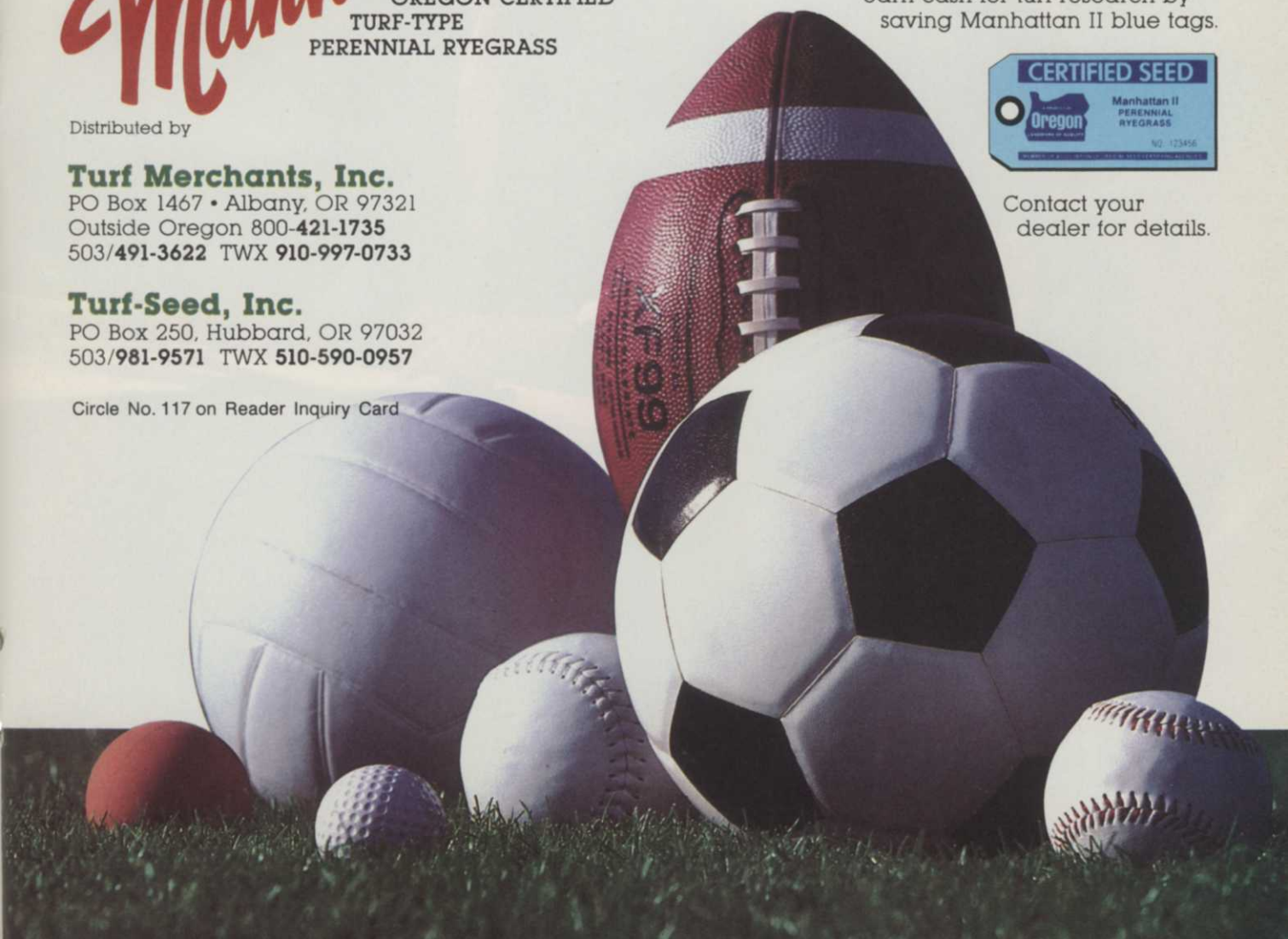

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Ask your turf chemicals dealer for SEVIN® brand SL carbaryl. As with any insecticide, always read and follow label instructions.

From the turf care group at Union Carbide

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Circle No. 131 on Reader Inquiry Card

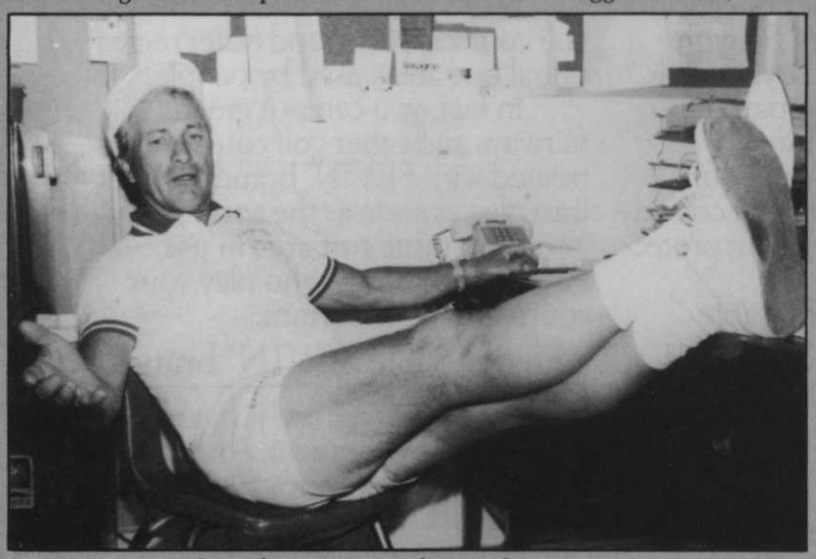
Big League Groundskeepers, Dirt of the Sports World?

by Ron Hall, assistant editor

Fiesty George Toma jabs his finger into the air as he decries the lack of respect he feels his profession gets in the high-rolling world of big time sports.

"The groundskeeper is the dirt of the organization," he says. "He's the lowest person of the organization. He's the dirt, dirt, dirt of this whole thing."

Toma, groundskeeper of the Kansas City Royals professional baseball team, may or may not be the best groundskeeper in the country, but he is undisputably the best known. He's the guy that draws the impersonal eye of the television camera and the praise of the likes of Howard Cosell between pitches, the fellow that gets the call when it comes time to spruce up the field for the millions-plus viewers of the NFL Super Bowl.



George Toma —*the industry's outspoken turf guru.*

He's also been in the forefront of what's often been a loosely-organized and poorly-defined effort to get athletic field maintenance recognized for something more than mowing grass. The fact that he's nationally-recognized is probably an indication that he's making some headway.

For Toma it's a long way from a rake handle in Wilkes-Barre, PA, where he started as a 17-year-old for the Cleveland Indians farm team Barons, to the modern Truman Sports Complex with its carpeted Arrowhead Stadium and adjoining Royals Stadium—38 years to be exact, time enough to gain a reputation as the number one groundskeeper in the nation.

Part of this fame is a result of Toma's rennovation of the turf in KC's old Municipal Stadium, home of the A's before their move to Oakland. A bigger reason, however, is probably Toma's penchant for speaking his mind.

"The groundskeeper really doesn't get the credit that's due him," he says. "It gets 110 to 150 degrees out on that turf (synthetic) and we've got kids out there painting. You have to feel sorry for these kids sometimes."

Paying dues

Toma pays his dues as well.

Thrown from a three-wheeler and into a tree just outside Royals Stadium several seasons back, Toma directed groundskeeping operations from a hospital room in his office. "I broke a bunch of ribs," he tosses off.

The energetic, 5'5" Toma obviously relishes his unofficial position atop the stadii groundskeeping hierarchy which he's managed to maintain by being more than a *grass doctor*.

"You have to know a whole lot about grass," he says, "but there's a lot more. There are chemicals, then you have to know how to decorate the end zones, to put up goalposts, to repair the sod."

Ironically, Toma's number one responsibility is Royals Stadium with its artificial turf surface, but he takes just as much pride in the condition of the nearby Chiefs' practice field with its mixture of Touchdown, Merit, and A-34 bluegrasses and Derby, Regal, and Elka ("we'll be changing to Derby, Regal, and Gator," he says) ryegrasses. "My feeling is the practice field should be better than the game field. That's where a lot of your injuries are," Toma notes.

In recent years, Toma's 26-year-old son, Chip, has been building a groundskeeping reputation of his own. Working closely with nationally-recognized agronomist Dr. James Watson of Toro, the younger Toma has developed a sand concept system that he successfully used to rennovate a bermuda grass field at William Jewell College in Liberty, MO.

Simply explained, the ratio of sand to loam is increased at each of three levels to the playing surface, providing a relatively inexpensive design with good root development and stable footing.

But, the elder Toma remains unhappy about the lack of support many groundskeepers get with their natural turf fields.

"People expect too much of it and in turn give it too little," he argues. "If you have a natural grass field you can't buy a grass cutter and you have fight to buy an aerifier."

That leaves it up to the groundskeeper to call the shots, to push for what's due him and his profession.

"It's not the dirt," Toma says. "It's the man that works the dirt." □

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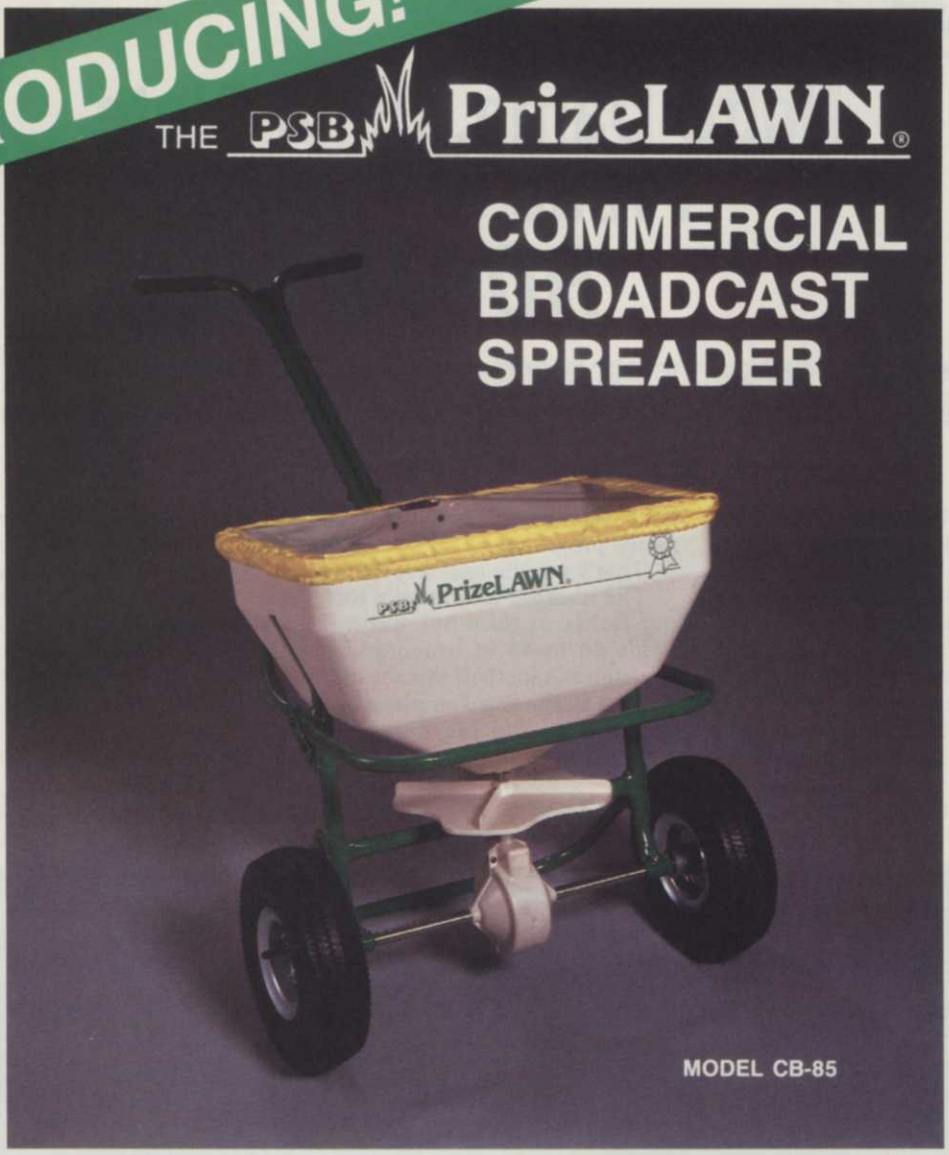

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LANDSCAPE MANAGEMENT

Notre Dame, Penn State Proud of Their *ROOTS*

They don't design the plays and they don't write the schedules, but knowledgeable athletic field managers do their part to keep traditions alive.

by Ron Hall, assistant editor

Major universities so proud of their athletic traditions sometimes aren't eager to maintain the facilities, including their turf fields, that helped in building the legends; but at Rockne Stadium at the University of Notre Dame and Beaver Stadium at Penn State University they do.

Athletes at both locations have been playing on grass for generations, and it looks like they'll continue to do so thanks to experienced groundskeepers who care enough to have established successful maintenance programs.

That's not the case everywhere.

The number of synthetic turf playing fields outnumber natural turf fields 56 to 48 in universities with Division 1-A football this season. Only Purdue in the Big Ten plays on grass, Missouri in the Big Eight. PAC-10 schools are split.

Notre Dame

It's hot in South Bend, IN, so hot a pair of ducks, oblivious to the campus foot traffic, treat themselves to the refreshing shower of a lawn sprinkler, but the most relaxing location on this midsummer scorcher is Harold "Bennie" Benninghoff's office in the belly of the University of Notre Dame Stadium.

Benninghoff, literally working in the shadow of the famed Golden Dome, is comfortable in his role as keeper of the Fighting Irish turf. Easy going and resourceful, he goes about his job in a quiet, workmanlike manner.

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"If you find something that works, why mess around with it?" Benninghoff says of his unsophisticated but practical maintanence program. It is the result of 20 years of tinkering at Notre Dame's Rockne Stadium where he's encountered everything from fusarium blight to the handiwork of over zealous Air Force partisans who initialed his stadium turf with a huge "AF" the fall of 1983.

In addition to Rockne Stadium, Benninghoff maintains approximately 40 acres of turf athletic fields and 24 tennis courts.

He's taking a breather after meeting with a Sherwin Williams rep concerning line marking paint to be used on an artificial surface practice football field. Benninghoff is seeking a paint that'll last forever. He's not convinced there is such a paint, but he's looking. Later in the day he'll be performing surgery on a sprinkler head decapitated by a wayward mower.

Benninghoff, in his own relaxed way, has tailored his program to fit his stadium's needs including application of Scott fertilizer (19-5-9) plus

"If you find something that works, why mess around with it?"

—Benninghoff

fungicide on a periodic basis, aerification with a 3/4-in. spoons at least four times (the most compacted areas six times) annually, overseeding with a Jacobsen groove seeder, and the addition of soil conditioners about twice a year.

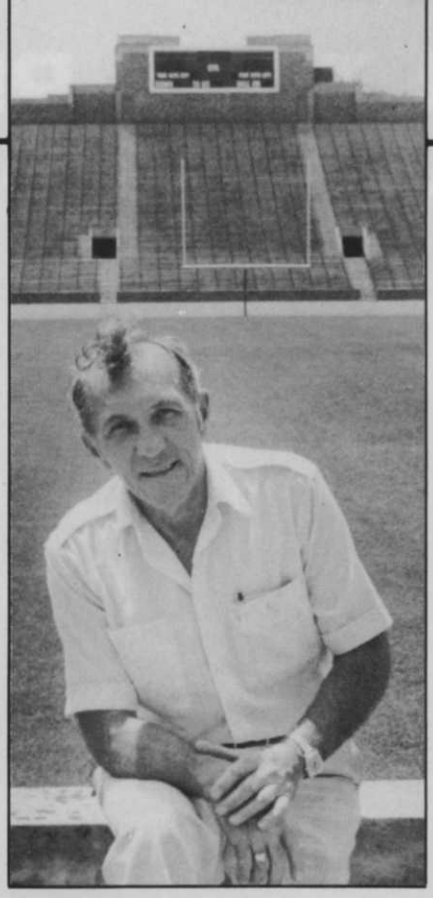
The field's surface is a mixture of Kentucky bluegrasses.

"Every time they come up with a new improved variety I try it," Benninghoff says. "There might be seven or eight varieties on it."

Problems? Nothing major.

"We're always fighting compaction like they are at other fields and we have had a grub problem, Japanese beetle and *aetenius spretulus*," he says, "so we watch and try to take preventative measures."

Installation of an underground Toro sprinkler system two years ago and the use of Rockne Stadium almost exclusively for football allows Benninghoff to keep his program on schedule.



Harold Benninghoff, *keeper of the "Fighting Irish" turf.*

Penn State program

The stoop-shouldered hills of Central Pennsylvania are a patchwork quilt of fall color but fog smothers the valleys as coach Joe Paterno's Nittany Lions are just one day away from a loss to a struggling Crimson Tide in far-away Alabama. Bob Hudzik, the 30-year-old Penn State University groundskeeper—the experiment—stays home.

Home for him is either Beaver Stadium, the 80,000-plus seat monument to the storied Lions, or one of two Penn State golf courses. He's on the job early. He leaves late.

"I guess I was kind of an experiment," Hudzik says of the decision a few years back to put him in charge of what is a pretty sizable hunk of real estate in the Nittany Valley. "Usually in a case like this it's somebody that's come up through the ranks, but I guess they wanted to see if I could develop some new ideas."

Hudzik's responsibilities, in addition to Beaver Stadium and the two campus golf courses, include practice fields, recreation fields used for intermurals, tennis courts, and even low maintenance fields used for parking.

Originally from a small Western Pennsylvania community, the tall, thin Hudzik, a former Penn State student, has put together and uses an athletic field rennovation program that, according to an informal *WTT* survey, is gaining favor at other universities as well.

"There are no secrets," Hudzik says, "and we're doing nothing difficult. It's just a matter of getting on the fields and getting to work. Our program is very simple."

The Penn State program begins in the spring, as soon as workmen can get on the fields. It has to.

Early each summer hundreds of eager youngsters arrive at State College, PA, to participate in summer sports camps. The campus is host to three consecutive football camps, each with 750 to 800 students. That gives the grounds crew about three weeks from the end of intramural sports to the beginning of the camps to pull the athletic grounds back together.

Renovation of the turf at Beaver Stadium begins at this time also to dress up the stadium for graduation ceremonies. "When these students and their parents are here we want this field looking as good as we can so we can leave them with a good memory of the university," Hudzik notes.

Early April sees the application of 3/4 to one pound of 18-5-9 fertilizer per 1,000 sq. ft. with a tractor drawn cyclone spreader. An application of straight urea provides a quick greenup.

Then Hudzik sees to it that athletic fields are practically riddled with an Arien rennovator with 3/4 tines. The fields are aerified at least eight times, the stadium turf 10 times.

Aerification vital

"If somebody asked me, 'what are the most important things you do to your fields?' I'd say aerification and phosphorus," Hudzik says. "Get the damn fields aerified. Sure, it would be nice if you could aerify in the fall too, but a lot of the time you just can't do it then."

A chainlink drag mat is used to smooth the soil churned up by the repeated aerifications.

"People sometimes say to me, 'well, I aerify and I still have problems'," Hudzik adds. "Maybe what they're doing is slicing. You've got to remove a core to allow the soil around the hole to collapse. If you have the time to let the field recover, just aerify the daylights out of it. It might scare you, but if you have a good overseeding program, you

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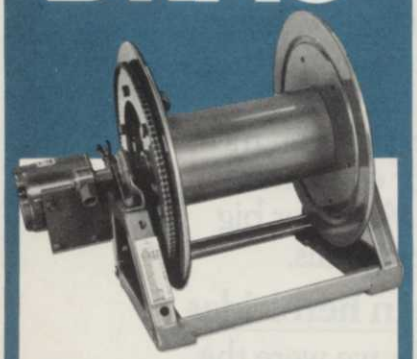

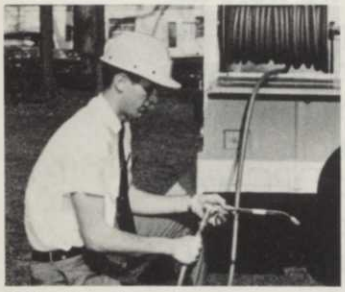

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shouldn't have any problem at all."

Hudzik says not to underestimate phosphorus either. His fields receive two pounds per 1,000 sq. ft. of triple super phosphate in late May.

"Phosphorus is essential. I would use it in a renovation process even if we weren't low on phosphorus. It's been proven that you can establish a good, healthy stand of grass much quicker with it. It's essential particularly in developing a good root system," he points out.

When overseeding, Hudzik believes it's best to work in a crossing pattern.

Using a groove seeder a mixture of three Kentucky bluegrasses (Baron, Fylking, and Touchdown) and two perenniel ryes (Pennfine and Manhatten) is applied in one direction, then Touchdown blue is sown perpendicular to the first mixture.

"Even on the football practice field I try to get the bluegrass established because it'll take more of a beating," Hudzik says, "but we know we don't have enough time to get bluegrass established on the intermural fields so we're putting a little extra rye on them."

It's just after overseeding that a lot of the thatch is removed from the stadium turf, last spring three dump truck loads. "The field's thin," Hudzik admits. "It looks like a piece of swiss cheese, but it's got all summer to recover."

Bare areas on the stadium floor are hydromulched ("if we put seed in it, it's very little") to keep moisture in and to prevent crusting which may hamper the emergence of grass seedlings.

The Beaver Stadium turf gets a rest after graduation. It's mowed three times weekly, watered as-needed, and treated with insecticides and fungicides "on a curative basis." For weed control Hudzik mixes 1 pound 2,4-D, .55 pound MCPP, and .10 pound of Diacamba.

Early October sees the Beaver Stadium turf receiving another shot of nitrogen, but Hudzik says he's careful not to overdo it.

"You can make a field look super but when it comes to football you don't want a super, lush growth. Those succulent grass blades will tear," he explains. "You want it to look good, but also you want the best playing conditions. You don't want to combine excess nitrogen and warm weather."

"There are no secrets. It's just a matter of getting on the fields and getting to work."

—Hudzik

Taking care of Beaver Stadium might be Hudzik's showcase, but he doesn't see it as "any big deal." Getting his renovation program under way each spring is. **WT&T**

Bob Hudzik, *and assistant Fred Sweeley of Beaver Stadium.*

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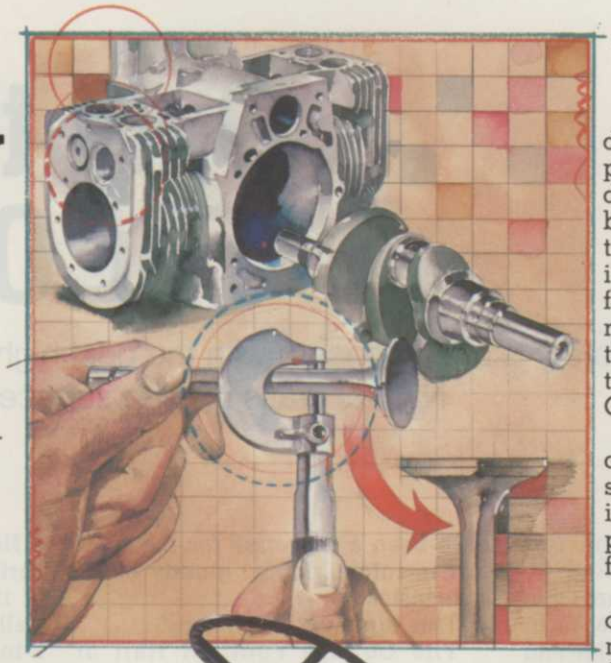

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LANDSCAPE MANAGEMENT

Only the Best For Our Kids

Safety is a big concern with the best high school sports program. Natural grass playing surfaces are usually the choice.

by Ron Hall, assistant editor

Kings Island and Oak Harbor, two small communities separated by about 250 miles of checkerboard Ohio farmland, don't have a whole lot in common. But they do share pride and a long-term commitment to excellence in their high school athletic programs. The evidence is two first-rate natural turf playing fields.

Small potatoes? Hardly.

The National Federation of State High School Associations reports more than 14,000 schools involved with high school football, more than 13,000 with baseball, and another 4,500 offering soccer programs.

Prep athletics continue to grow, but shrinking budgets result in many young athletes using facilities that are often poorly planned, worn out or neglected, sometimes even dangerous.

The importance of proper athletic field construction and maintenance came down hard at College Football Hall of Fame at Kings Island just a short drive from Cincinnati.

Fall religion

The Hall of Fame, located on a knoll within eyesight of the large Kings Island theme park, displays relics of our fall religion beside the microchip wizardy of computers and film presentations. It is a neat slice of Americana; as American as the "rah rah" of a Saturday afternoon in the fall.

But when it came to the game itself, the Hall of Fame flopped when it built a field of its own in 1981. What should have been a showcase for the sport turned into a sloppy, muddy headache instead.

This summer that changed.

The College Football Hall of Fame's Galbreath Field sports a new Prescription Athletic Turf (PAT) playing surface and is home field for a pair of nearby high schools, including nationally-recognized Cincinnati Moeller. It also hosts the Collegiate Division III championships, the Amos Alonzo Stagg Bowl.

A tough choice

The PAT natural turf field was chosen even though an artificial surface received serious consideration.

"We're basically a high school stadium and we've seen enough to know that grass for growing young people is a safer surface," Don Schumacher, general manager of the Hall of Fame, says. "Also, cost was a major consideration. We figured it would cost about $600,000 with synthetic turf and we might have to replace it in eight or nine years. The PAT cost $300,000."

Strengthening the swing to grass was the availability of professional maintenance help from the nearby Jack Nicklaus Sports Center with its two golf courses. The Nicklaus Sports Center is owned and managed by the Taft Broadcasting Company which also manages the College Hall of Fame.

PAT, invented by Dr. William Daniel of Purdue University, provides a flat, moisture-controlled playing surface. The turf is placed over a bed of 12 to 14 inches of sand which, at Galbreath Field, covers a network of 2-inch perforated tile (15 in all) running lengthwise every 11 feet apart. These tiles connect to a main drain which leads to a pump house.

A thick plastic sheet lies just below the layers of turf, sand, and tiles. Electronic sensors measure the moisture content. Watering is accomplished in two ways: via traditional in-ground sprinklers (Galbreath has 21 Toro sprinkler heads on the field and about 50 around the perimeter) and by pumping water back through the system beneath the field.

"Don't misunderstand," Schumacher says. "I'm not anti-artificial turf, but when you combine the savings, the utility of use and some concern for younger players, and then we have professionals to maintain it—the PAT is right for us."

The field is excellent for Moeller which shares the field with neighboring Kings High School. Moeller, perenniel Ohio champion, is consistantly ranked as one of the finest high school football teams in the nation and this season hosted Christopher Columbus, Miami, FL, and Cathedral Prep, Erie, PA, at Galbreath. Gerry Faust coached and won honors at Moeller before being tabbed as head coach at the University of Notre Dame in 1981.

But, Galbreath Field was anything but championship prior to this season.

Carved from a woodlot in 1981, its natural soil base had literally been chewed into a dustbowl by almost daily rounds of football and soccer. Built with a 21-inch crown, forward passes at the Hall of Fame field resembled mortar lobs and long passes in soccer games took parabolic routes to their destination.

"The first year we had 18 or 19 high school games," Schumacher explains. "We didn't have any rain and the field was dry every game. We tore the turf (the field had been seeded with fescue) pretty badly, but we thought maintaining a field was easy and that everybody could do it."

Management at the College Hall of Fame pulled out all the stops in 1982, scheduling a full program of youth football and soccer in addition to the high school games and season-ending state playoff game.

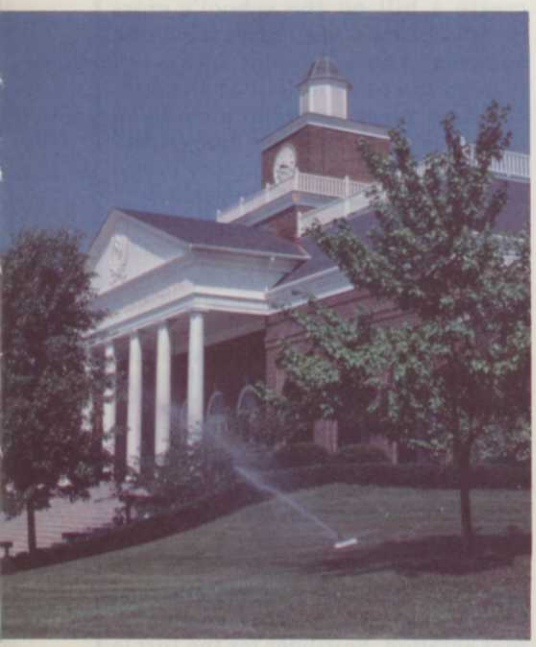
Disaster struck.

"The field started to tear up," Schumacher says. "By the time we made it to Thanksgiving the top six inches of material were churned to a pudding. It wasn't even safe to walk on. What a mess."

The field was resodded with bluegrass in March 1983 in an attempt to bring it back to life. Youth football and soccer programs were dropped.

The bluegrass looked good ("We found the bluegrass tended to regenerate and it also made for better footing," Schumacher says) but the basic problem remained. Rains turned the surface mushy and conditions weren't good for the Stagg Bowl which featured Augustana and Union City Colleges.

When officials from the National Football Foundation and Hall of Fame, Inc., owners of the field, went looking for answers they didn't have far to go. Spinney Field, the PAT prac-



The College Football *Hall of Fame, Kings Island, OH.*

Mel Hoover *of Oak Harbor, school superintendent and grounds superintendent.*

Filling in *around irrigation lines at Galbreath Field, King's Island.*

tice field for the Cincinnati Bengals professional football team, was nearby. Eventually a meeting was arranged with PAT proponent Daniel at Purdue in Lafayette, IN.

"Now that we have a surface that can control the moisture, we can somewhat control the wear," Schumacher explains. "We're very eager to get to the fall of 1985."

This past year marked a renewed interest in the sand-concept PAT system with the University of Mississippi removing an old artificial surface in favor of PAT at Vaught-Hemingway Field in University, MS. PAT fields have been in use at three high schools, two in Indiana and one in Michigan, for the past decade with all three holding up well under intensive use. There have been problems, however, although they don't appear to have been a result of the PAT concept.

Alkalinity woes

In Evansville, IN, for instance, an inability to keep healthy turf on a PAT field was eventually traced to the high alkalinity of the city water supply. Bob Meyerholtz, who oversees the field, says efforts to grow first Bermudagrass, then fescue, then zoysia failed as the alkalinity of the soil, irrigated with city water, climbed to a pH of 8. Meyerholtz, a teacher of agriculture at Reitz Memorial High School, says phosphoric acid is now added to water used on the field and the turf is showing "a definite improvement in growth, color, and standibility."

Meyerholtz admits the terrific usage the field gets (it is used by the junior high and high school teams from two schools) keeps it from being a showcase. "We have so many things on it, including band practices once or twice a week. We do have a problem in keeping grass in the center of the field," he says.

The PAT natural turf field was chosen even though an artificial surface received serious consideration.

Tax money used

PAT remains beyond the financial reach of most high schools, however, even ones like Oak Harbor in Northwestern Ohio, the beneficiary of a tax windfall from a nearby nuclear power plant. Once one of the poorest districts in that part of the state, the Benton-Carroll-Salem District (of which Oak Harbor is a part) has literally uncorked a magic genie.

"The state says you can't save the money," School Superintendent Mel Hoover says of an ambitious project to upgrade the school's athletic facilities. "You have to use it and have a reason for using it, so we're using it."

The school sports a lush new football field encircled by a rust-colored, latex-based, all-weather track with accompanying permanent metal stands and concession stand. A baseball diamond with a grass infield, four new tennis courts, a football practice area and an encircling cross country course complete the athletic complex.

Price tag for all the above? About $650,000, according to Hoover.

Even with the taxes generated by the Davis-Besse nuclear power plant, however, school officials keep a careful eye on expenses.

Subsoil taken from the football field site, for instance, was used to create a hill on the school's cross country course. And, when it became apparent the seed that had been planted the previous fall on the football field wasn't going to provide an attractive playing surface, Hoover and a handful of volunteers (mostly teachers) resodded the field themselves.

"We got a pretty good crop of weeds from the straw that was on the seeds, but we didn't feel like the grass was going to mature," he recalls. "We waited to see what was going to happen, but we couldn't wait any longer because we had to give the sod enough time to anchor itself."

Hoover, who built and operated a nearby golf course prior to heading the neighborhood school, remains protective of the field which is built over native clay soils.

The field gets "tender care," he says, including liberal applications of the soil conditioner Turfas and regular aeration. Fertilizer for the turf (a mixture of Nugget, Cheri, and Adelphi Kentucky bluegrasses) is applied four times annually, while irrigation is provided by electronically-timed Toro Mistamatic sprinklers and drainage by four-inch field tile with off-field catch basins.

Hoover admits his school could have spent more on its athletic fields, but he doesn't feel the extra expense would have accomplished anything.

"I think we have excellent facilities and they stay in good shape," he points out. "The key, I think, is keeping them well maintained." **WT&T**

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Poa trivialis., often called rough bluegrass, is native to northern Europe, temperate Asia, and North Africa, and has been introduced to both North and South America and Australia.

Brought to the United States from Europe during the Colonial period, it is best adapted to moist, shaded areas from Newfoundland to North Carolina and from Alaska to California.

Poa trivialis produces a moderately-fine textured, light green, medium-dense turf. It is a cool-season, sod forming perennial which spreads by creeping leafy stolons, and may be found growing in soils with a pH from 5 to 8, with the best growth between 6 and 7.

Beside being well-adapted to damp, shaded locations, it is also found growing in wet meadows, in fertile grasslands and along ditchbanks. *Poa trivialis* has the ability to germinate and grow at low temperatures, displays good color retention in the fall, produces early spring greenup, germinates rapidly with good seedling vigor, and has excellent winter hardiness.

Rough bluegrass has also been useful for winter overseeding of dormant warm-season turfs in the South. In southern overseeding mixtures, rough bluegrass is usually combined with improved turf-type perennial ryegrasses (10 to 15% *Poa trivialis* with 85 to 90% perennial ryegrass by weight).

Rough bluegrass does not tolerate drought and is likely to be short-lived on dry sites. The root system is fibrous, relatively shallow, and annual in nature. It may be severely damaged or killed during periods of moisture stress, especially in dry sandy soils. *Poa trivialis* also has poor wear tolerance and will not persist under heavy traffic.

There are approximately 2.3 million seeds per pound. The seed germinates under a wide temperature range with peak germination occurring at approximately 50 degrees F. Below 40 degrees F. less than 50% of the seed will germinate.

Rhizoctonia brown patch, leaf spot, and dollar spot are the most common diseases associated with *Poa trivialis*, however grey snow mold, pink snow mold, ophiobolus patch, pythium blight, fusarium blight, rust, stripe smut, and powdery mildew have also been reported as occurring on this species.

Before the release of Sabre *Poa trivialis* in 1977, no domestic cultivars were commercially available and most of the seed was imported from Europe. European common types are normally taller, lighter green, and form a looser sod than Sabre. Common types are of limited value for quality turf in moist shaded lawns or for winter overseeding. However, these common types may be useful for forage purposes in cool, moist environments, normally found in northern Europe.

Development of cultivars with lower growth habit, darker color, denser sod, improved disease resistance, and reduced seed shattering would be helpful in expanding the potential useage of this species.

POA TRIVIALIS

A Specialty Use Turfgrass

by Richard Hurley, Ph.D., Vice President and Director of Research and Agronomy, Lofts Seed Inc., Bound Brook, NJ

Rough bluegrass variety shade test *at Lofts research farm in New Jersey.*

Management

Rough bluegrass as a permanent turf is limited to shaded sites in the cool humid and cool semi-arid regions of the U.S. (zones 1, 5, 6, and 7). It should not be used for a permanent turf in transition or warm-season zones (zones 2, 3, 4, and 8) or in full sun in cooler climates (zones 1, 5, 6, and 7).

For permanent turf a seeding rate of two pounds per 1,000 square feet is recommended. Three pounds per 1,000 square feet is suggested when using a seed mixture designed for shaded sites, such as 30% *Poa trivialis*, 30% shade tolerant Kentucky bluegrass, 20% fine fescue, and 20% turf-type perennial ryegrass.

In shaded areas rough bluegrass may be mowed lower than other cool-season grasses (as low as 1/2-inch). Applications of a 25:5:10 or equivalent complete fertilizer should be applied once in early spring before trees leaf out and in mid- to late-fall after the leaves have fallen.

Dandelion and broadleaf weeds may be controlled with 2,4-D, however injury to *Poa trivialis* may occur if this herbicide is applied at higher than normal rates or when temperatures are above 85 degrees F.

Rough bluegrass benefits from both light and frequent irrigation because it is shallow-rooted.

When used for overseeding dormant warm-season putting greens, *Poa trivialis* seeding rates of 15 to 20 pounds per 1,000 square feet are recommended. However, rough bluegrass mixtures containing 85% perennial ryegrass with 15% rough bluegrass, or 60% perennial ryegrass with 25% chewings fescue and 15% rough bluegrass are desirable.

Look for Landscape Manager's Guide to Bentgrasses in the January 1985 Golf Issue of WT&T.

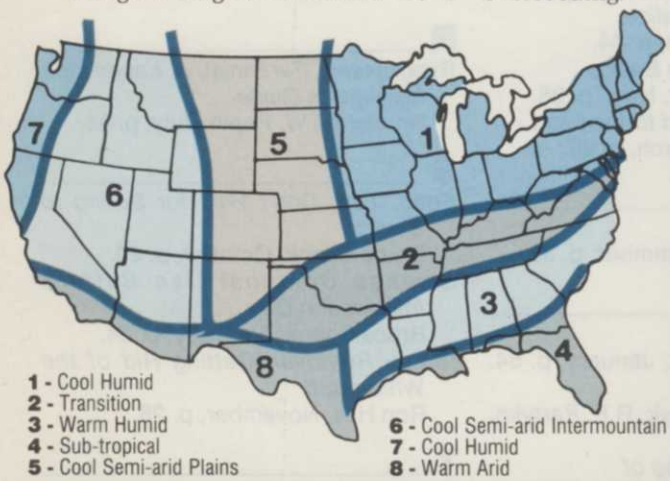
Once established, *Poa trivialis* can withstand heights of cut below 3/16-inch. Frequent light verticutting is necessary to prevent grain from developing. Light frequent applications of soluble nitrogen at 1/2 pound per 1,000 square feet is recommended every two to three weeks after winter overseeding.

During establishment, irrigate lightly 3 to 4 times per day between 10 a.m. and 4 p.m. Once the turf is established, syringing during mid-day may be necessary when dry, windy weather causes surface drying. If rough bluegrass is damaged by heat or drought, premature spring transition may occur.

Improved varieties

Sabre was developed by Dr. C. Reed Funk and Bill Dickson at Rutgers University and released in 1977. It has a medium leaf texture with a darker green leaf color when compared to Danish common. Sabre, like other sources of *Poa trivialis* is sensitive to heat and drought and is susceptible to dollar spot and brown patch disease. Sabre has performed well when used as a component in mixtures for use in overseeding dormant warm-season turfs. It is also useful for permanent turf in damp cool, shaded locations in temperate climates. **WT&T**

Dr. Hurley studied *Poa trivialis* as part of his graduate work under Dr. C. Reed Funk at Rutgers University and is currently working on an improved variety of rough bluegrass for the landscape market for Lofts Seed Inc.



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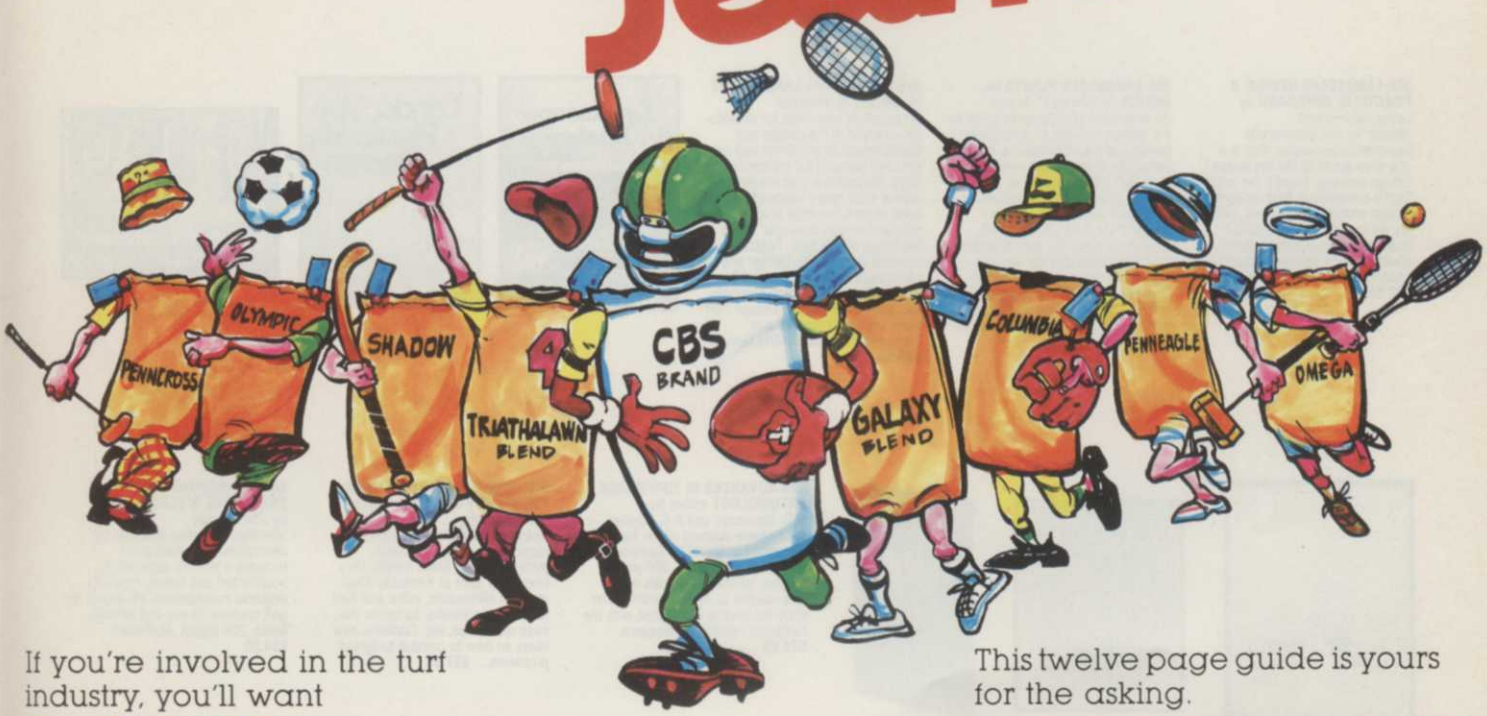

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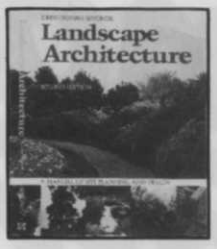

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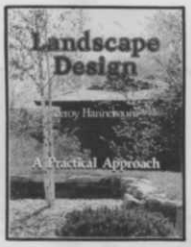

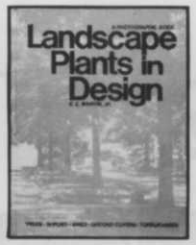

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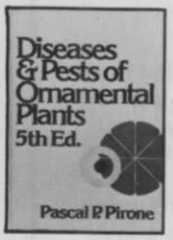

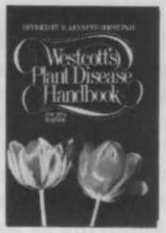

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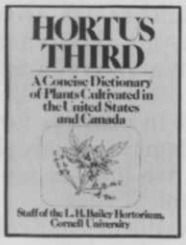
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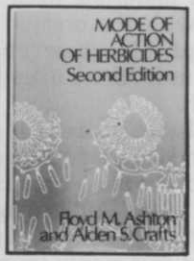

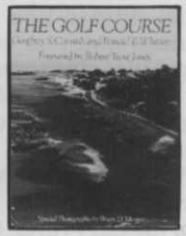

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Illustrates plant identification characteristics. Organized in two basic sections: plant identification and plant disorders, this text utilizes 430 color photos, 430 line drawings and 45 black and white photos to simplify identification. Goes into detail on plant identification and description as well as plant problems such as diseases, chemicals, insects, animals and physiological disorders. **$27.00**

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PROBLEM SOLVERS

By Balakrishna Rao, Ph.D

Bark mulch better than stones

Problem: *Will the replacement of bark mulch with 1-3/4" stone in shrub beds cause any long-term problems with shrub growth and development? Plantings are made up of mostly pines, yews, junipers, azaleas and rhododendrons. (Maine)*

Solution: A review of information relevant to your question indicates there isn't a simple yes or no answer. I've seen stones, pebbles, gravel, and other inorganic materials used as mulch, but I'm more familiar with the organic mulches, i.e., wood and bark chips. My observations are that when rock mulch is used, there usually is a sheet of plastic film beneath it.

The plastic, usually black in color, is for weed control and it may cause problems for woody plants. I often find poor aeration and too little or too much moisture in the underlying soil.

Poorly aerated, wet soil plus the root and collar rot organisms commonly found under such conditions can cause root loss, reduced growth, and/or death of the entire plant. When the rock mulch has been in place for several years it is, in my opinion, not very attractive because weeds and other things grow in or on the litter that accumulates among the stones. I would think it tedious, if not impossible, to remove leaves and decomposing plant material from large beds of rock mulch. With most of the organic mulches such debris simply blends in.

The appearance of bark-mulched beds can be easily improved by a top dressing of fresh material.

Where black plastic isn't used, weeds are a problem. Herbicides often become the only means by which the beds are kept free of these unwanted plants. Repeated contact with herbicides through drift and/or root uptake can injure or kill the desirable plants. When the bed gets a lot of sunlight the rocks store heat; enough heat that they are too hot to handle. Renovation of rock-mulched beds means removing the existing layer of rocks, putting down new plastic, and spreading around new or clean stones.

High temperatures can kill or injure roots and emerging or thin-barked plants. If the rock, stones, pebbles or whatever are of calcareous origin, e.g., limestone, the mulch may reduce soil pH to the point where the pines, junipers, azaleas, rhododendrons, and even the yews suffer from micronutrient deficiencies.

Fungi culprit in fairy ring

Problem: *What causes "fairy ring" problems in lawns and how do we get rid of them? (Toronto, Canada)*

Solution: Fairy ring problems in lawns can be caused by a number of different fungi belonging to one group - the mushroom family. These fungi grow on buried organic matter such as logs, roots, and construction materials in the soil.

The fungus growth can become so dense that the soil cannot be wetted and the grass dies from lack of moisture or from a toxic substance released that prevents the growth of the grass. Fungal decomposition of organic matter releases the nitrogen which stimulates adjacent grass to grow greener. This may be quite annoying as some are foul-smelling, a few are poisonous, and all are unsightly on a well-maintained lawn.

The following cultural practices should help to manage or suppress the problem: 1) Regular mowing will remove the mushrooms. Mushrooms may grow back again until the food reserve is used up. Therefore, if desired to prevent this, remove buried organic matter or re-establish turf in clean soil. 2) Or wait until organic matter is used up with the hope that eventually the rings will disappear. 3) Apply water into the soil to a depth of one to two feet at one foot intervals just inside the ring of dead grass with a tree feeding lance or root feeder attachment on a garden hose. Aerating and drenching the soil with a wetting agent will help prevent the development of the zone of brown or dead grass in the area of dense mycelial (thread-like fungal body) growth. Treat when rings appear or whenever grass shows signs of wilting. This is inexpensive, easy, and satisfactory to mask the symptoms. 4) Maintain a good fertility level throughout the year to help mask the stimulated, dark green rings.

5) Avoid applications of organic matter such as manure or mulches as they may stimulate development of the fairy rings. 6) Remove infected soil in the ring to a depth of 18 inches and replace it with fresh, clean soil. This, however, is laborious and expensive.

Although not impossible, the chemical control approach is difficult, laborious and expensive. Some success has been achieved by aerating the soil and drenching the infected area with a fungicide. However, results have been sporadic and generally unsuccessful. Stripping off the sod and fumigating the soil with methyl bromide, or some other fumigant, would provide complete control of fairy ring problems. **WT&T**

Balakrishna Rao is Director of Lawn Care Technical Resources for Davey Tree Expert Co., Kent, OH.

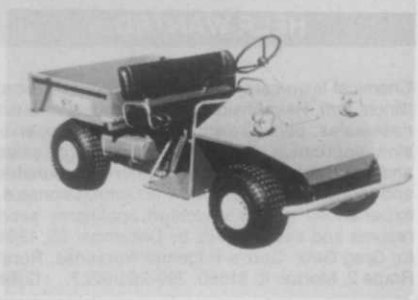
Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.

PRODUCTS

Heald's all-purpose 1/4-ton utility truck

New farm and industrial mini-trucks called Mark Series Haulers are now available from Carl Heald Inc.

The haulers are available in either three or four wheeled models. They are available in kit form or fully assembled through dealers or are available factory direct in kit form. Features are a new lower maintenance, fully enclosed helical gear transaxle which provides forward, neutral, reverse and oil lubrication. An automatic clutch with belt drive torque converter gives infinite drive ratio change from 37.5:1 to 12.5:1.



They are powered by four cycle, heavy duty industrial engines of 10, 11 and 16 horsepower. Other accessories are available.

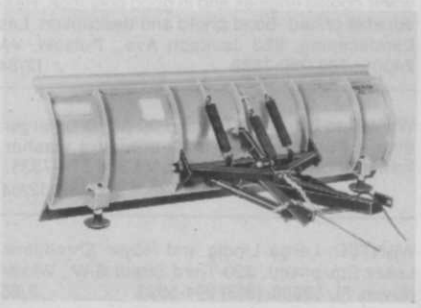
Circle No. 191 on Reader Inquiry Card.

Western expands Pro-Plow line

The industry's first snowplow with an exclusive shock absorber feature, the Western 8 1/2-foot Pro Plow, has now been joined by a 7 1/2-foot and 8-foot version to complete Western's Pro-Plow line.

The shock absorber provides a smooth forward trip during spring extension and decelerates the return trip speed.

By softening the return, Western engineers have been able to substantially reduce impact loads to blade, trip springs, A-frame, quadrant, mount and the vehicle itself.



Designed for 3/4 and one-ton four wheel drive pickup and utility vehicles, these new Pro-Plows offer all the standard plow features plus 28-inch high rolled-edge blades with carbon 1080 steel cutting edges. Minimum down time is assured by two adjustable, one-inch thick, abrasion-resistant cast ni-hard steel disc shoes.

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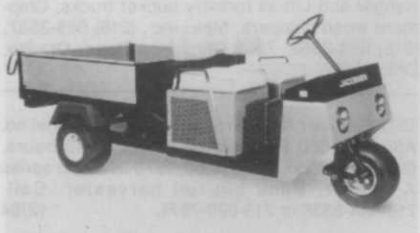
Jake offers new utility trucks

A new line of utility trucks designed to perform a variety of services has been introduced by the Jacobsen Division of Textron Inc.

The new models are the T1000 with a 1,000 pound capacity and the T2000, with a capacity of up to 2,000 pounds. With attachments, the T2000 performs a variety of turf care tasks in addition to carrying personnel and hauling equipment and materials. The line carries full service and parts support.

The T1000 is a four-wheel truck powered through an automatic-type transmission by a fuel-efficient Jacobsen air-cooled engine that will operate all day on its 6-gallon tank of gas. Riding on a 71-inch wheelbase, with an overall length of 106-inches, the compact machine has a light print of only 8 psi, a desirable feature in turf work.



The T2000 is for more rigorous and varied duty. It is powered by an 18 hp twin-cylinder air-cooled Onan gas engine, moving the three-wheel truck through a three-speed transmission at speeds up to 22 mph. Nearly six hours of continuous use are provided by one 8.5 gallon-tank of gas.

In addition to its 2,000-pound capacity, with 10-ply tires, including operator and passenger, a variety of optional attachments convert the T2000 into a multi-function system machine.

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EVENTS

DECEMBER

Ohio Turfgrass Conference and Show, Dec. 3-6, Cincinnati Convention and Exposition Center. Contact Dr. John Street, OTF, 2021 Coffey Rd., Columbus, OH 43210, (614) 422-2601.

Texas Turfgrass Conference, Dec. 10-12, Hilton Hotel and San Antonio Convention Center, San Antonio, TX. Contact Shirley Duble, Executive Secretary, Texas Turfgrass Association, 3606 Meadow Oaks, Bryan, TX 77802, (409) 846-0360.

JANUARY

23rd annual North Carolina Turfgrass Conference and Exhibit, Jan. 2-4, Sheraton Hotel, Charlotte, NC. Contact W.B. Gilbert, 1119 Williams Hall, Box 7620, North Carolina State University, Raleigh, NC, 27695, (919) 737-2657.

GrowerExpo, Jan. 4-6, Chicago Marriott Hotel. Contact Kathy Wootten, GrowerTalks magazine, PO Box 501, West Chicago, IL 60185, (312) 293-5020.

Ohio State Residential Design Landscape Short Course, Jan. 9-11, Advanced Landscape Design. Prerequisite is Course 1. Contact Fred K. Buscher, Northeast Extension Service, OARDC, Wooster, OH 44691.

New Hampshire Turf Conference, Jan. 10-11, Center of New Hampshire, Manchester, NH. Contact Dr. John Roberts, Cooperative Extension Service, University of New Hampshire, Nesmith Hall, Durham, NH, 03824, (603) 862-1200.

New York State Arborists, ISA Chapter Inc. Annual Convention, Jan. 13-15, Corning Hilton Inn, Corning, NY. Contact New York State Arborists, ISA Chapter, 230 Park Ave, NY, NY.

Mid-Atlantic Nurserymen's Trade Show, Jan. 16-18, Baltimore Convention Center, Baltimore, MD. Contact Carville M. Akehurst, Perry Hall, MD 21128, (301) 256-6474.

To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 7500 Old Oak Boulevard, Cleveland, OH 44130.

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Short People Got Nobody

The reaction to Randy Newman's *Short People Got Nobody* was swift and loud when the song first aired on radio in the early 70's. Short people felt the song was an insensitive putdown by tall people. They called radio stations to protest, they picketed Newman's concerts for months, and they wrote new lyrics to the tune knocking tall people, fat people, and any other vulnerable part of society. They were upset and released years of pent up frustration.

A similar frustration exists in the Green Industry. It is caused by the excessive attention poured over lawn care operators and golf course superintendents by suppliers and the news media while other Green Industry professions go unrecognized.

Refusing to accept a lesser position in the industry, smaller and older Green Industries are starting to fight back.

Without the emotional stimulation of a song, smaller industry associations are regrouping to restore their rightful share of recognition amongst all Green Industries.

The list of examples is long. The American Sod Producers Association hired a full-time, experienced executive director, Doug Fender, and immediately started an image-building campaign. The Professional Grounds Management Society has made Allan Shulder's part-time position a full-time one and the PGMS board's primary goal is more attention for their programs and show. The Sports Turf Managers' Association has just separated from its former management firm and its board selected image-building and show as key objectives. The Associated Landscape Contractors of America has stepped up its maintenance programs to show the landscape world there was landscape maintenance before the term lawn care was ever coined.

There is a solution to the image problem of smaller associations, one where the individual associations can preserve their identity but still take advantage of a larger show, more attention from manufacturers, and perhaps bigger budget educational programs.

It is a joint conference. Instead of 200 people attending separate shows, 3,000 will attend a joint conference. Instead of 35 small booths, there will be 200 exhibitors with their big booths. Instead of speakers from a limited area, there will be experts from across the country.

This can be done without small associations losing their identity in a big crowd. In fact, small associations can still have small meetings if they want, but once a year put their muscle together with other allied associations for a *major event.*

Such an event will become reality within the next 18 months. Mark my word.

Bruce F. Shank

Bruce F. Shank, executive editor

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